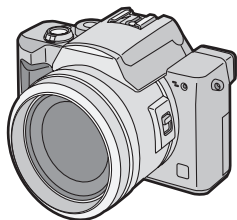
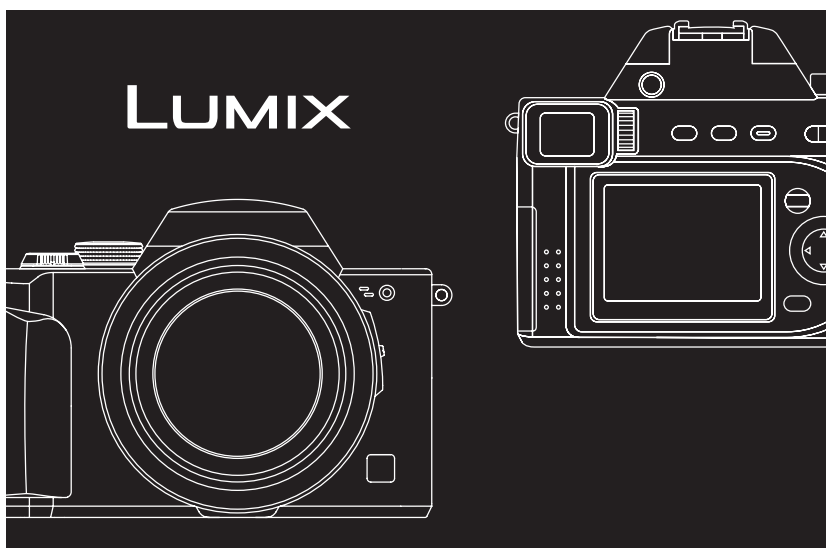


Panasonic



Digital Camera Operating Instructions

Model No. **DMC-FZ10GN**



LEICA
DC VARIO-ELMARIT

Before use, please read these
instructions completely.

VQT0G04

Dear Customer,

We would like to take this opportunity to thank you for purchasing this Panasonic Digital Camera. Please read these Operating Instructions carefully and keep them handy for future reference.

Information for Your Safety

WARNING

TO REDUCE THE RISK OF FIRE OR SHOCK HAZARD AND ANNOYING INTERFERENCE, USE ONLY THE RECOMMENDED ACCESSORIES AND DO NOT EXPOSE THIS EQUIPMENT TO RAIN OR MOISTURE. DO NOT REMOVE THE COVER (OR BACK); THERE ARE NO USER SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

Carefully observe copyright laws. Recording of pre-recorded tapes or discs or other published or broadcast material for purposes other than your own private use may infringe copyright laws. Even for the purpose of private use, recording of certain material may be restricted.

- Please note that the actual controls and components, menu items, etc. of your Digital Camera may look somewhat different from those shown in the illustrations in these Operating Instructions.
- SD Logo is a trademark.
- Other names, company names, and product names printed in these instructions are trademarks or registered trademarks of the companies concerned.

IF THE POWER CORD OF THIS EQUIPMENT IS DAMAGED, IT MUST BE REPLACED WITH AN ELECTRICALLY APPROVED POWER CORD.

THE SOCKET OUTLET SHALL BE INSTALLED NEAR THE EQUIPMENT AND SHALL BE EASILY ACCESSIBLE.

CAUTION

Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.

Extremely high precision technology is employed to produce the LCD monitor/Viewfinder screen. The result is more than 99.99% effective pixels with a mere 0.01% of the pixels inactive or always lit. However, this is not a malfunction and does not affect the recorded pictures.

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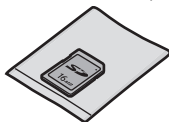
Standard Accessories

Before using your camera, check the contents.

■ SD Memory Card (16 MB)

RP-SD016B

(In the text, it is indicated as "Card")



■ Battery Pack

CGA-S002E

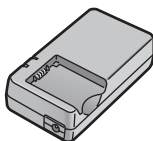
(In the text, it is indicated as "Battery")



■ Battery Charger/AC Adaptor

DE-928B

(In the text, it is indicated as "AC Adaptor")



■ AC Cable

K2CJ2DA00002 or K2CJ2DA00011



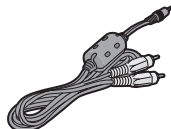
■ DC Cable

K2GH2DB00003



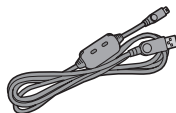
■ A/V Cable

K1V204C10001



■ USB Connection Cable

K1HA05CD0004



■ CD-ROM



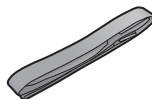
■ Lens Cap

VYK0W96



■ Strap

VFC4036



■ Lens Hood

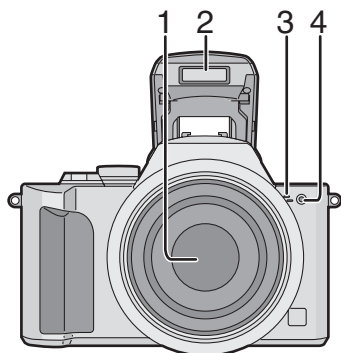
(72 mm threading for MC protector and ND filter)

VYQ2793 (Silver)

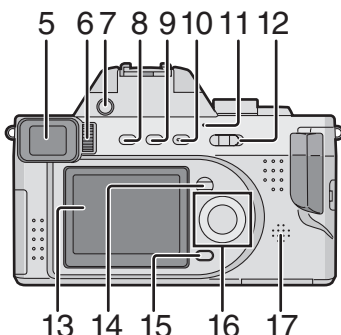
VYQ2824 (Black)



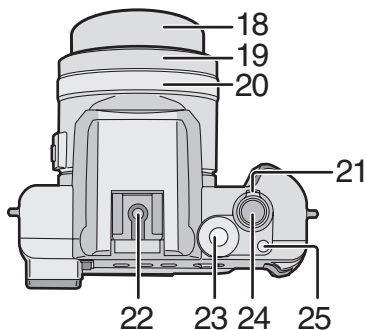
Names of the Components



- 1 Lens
- 2 Flash
- 3 Microphone (P61, 73)
- 4 Self-timer Indicator (P41)

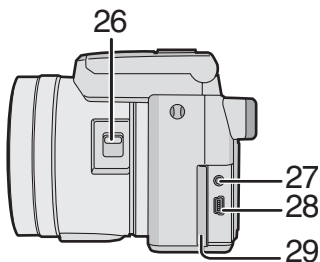


- 5 Viewfinder (P25)
- 6 Diopter Adjustment Dial (P26)
- 7 Flash Open Button (P36)
- 8 [EVF/LCD] Button (P25)
- 9 [DISPLAY] Button (P25)
- 10 [EXPOSURE] Button (P33, 49, 50, 51, 52)
- 11 Power Indicator (P30)
- 12 Camera Switch (P9)
- 13 LCD Monitor (P25, 117)
- 14 [MENU] Button (P22)
- 15 Delete Button (P46)
- 16 Cursor buttons
 - ◀/Self-timer Button (P41)
 - ▼/REVIEW/SET Button (P34)
 - ▶/Flash Mode Button (P36)
 - ▲/Exposure Compensation (P39)/Auto Bracket (P40)/White Balance Fine Adjustment (P68)/Flash Output Adjustment (P38) Button
- 17 Speaker (P86)

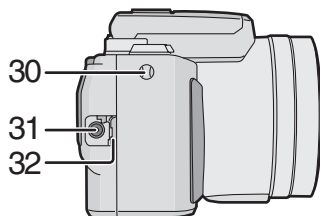


- 18 Lens Barrel (P31)
- 19 Lens Ring (P19)
- 20 MF Ring (P63)
- 21 Zoom Lever (P35, 75)
- 22 Hot Shoe (P82)
- 23 Mode Dial (P28)
- 24 Shutter Button (P29)
- 25 Single/Burst Mode Button (P42)

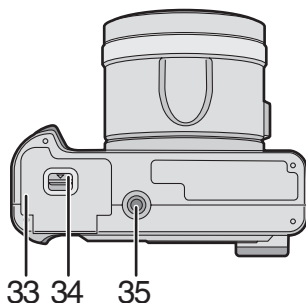
Preparation



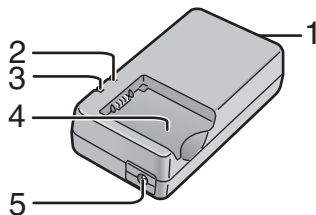
- 26 Focus Switch (P63)
- 27 [A/V OUT] Socket (P104)
- 28 [USB] Socket (5pin)
(P107, 108, 110)
- 29 Terminal Door



- 30 Strap Eyelet (P18)
- 31 [DC IN] Socket (P14)
- 32 [DC IN] Terminal Door (P14)



- 33 Card/Battery Door (P12, 16)
- 34 Card/Battery Door Open Lever
(P12, 16)
- 35 Tripod Receptacle



■ **Battery Charger/AC Adaptor
(P10, 14)**

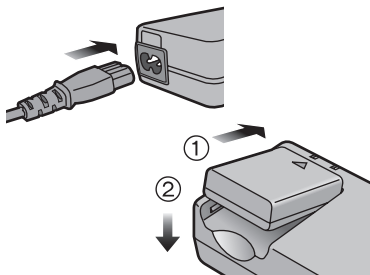
- 1 [AC IN~] Terminal
- 2 [POWER] Indicator
- 3 [CHARGE] Indicator
- 4 Battery Attachment Part
- 5 [DC OUT] Terminal

Quick Guide

- Charge the battery before using.
- Prepare the Camera/AC cable/Battery/AC adaptor/Card.
- Check that the camera is turned off and that the lens is retracted.
- Close the flash. (P36)

■ Preparation

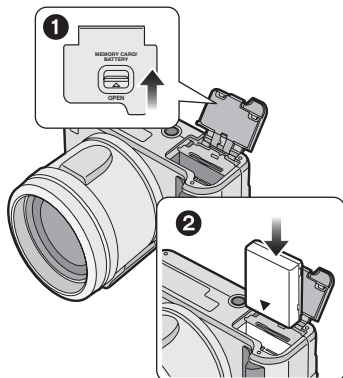
1 Charge the battery. (P10)



- The battery cannot be charged when the DC cable is connected to the AC adaptor.

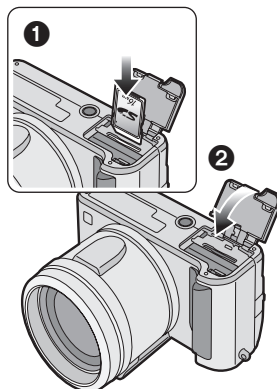
2 ① Slide the lever to open the card/battery door.

② Insert the battery. (P12)



3 ① Insert the card. (P16)

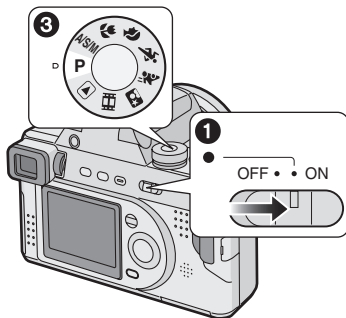
② Close the card/battery door.



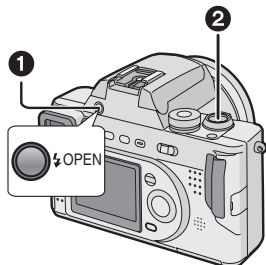
■ Recording

- Remove the lens cap.
- Be careful not to lose the lens cap.

- 4
- 1 Turn the camera on.
 - 2 Set the clock. (P20)
 - 3 Select Programme AE mode [P].

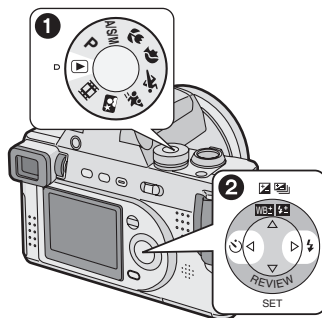


- 5
- 1 Open the flash. (When using the flash) (P36)
 - 2 Take a picture. (P29)



■ Playback

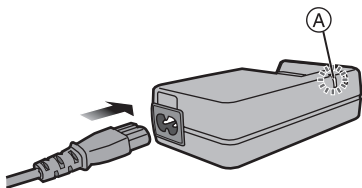
- 6
- 1 Select Playback mode [>].
 - 2 Select the picture you want to view. (P43)



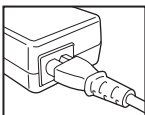
Charging the Battery

Charge the battery before using.

1 Connect the AC cable.

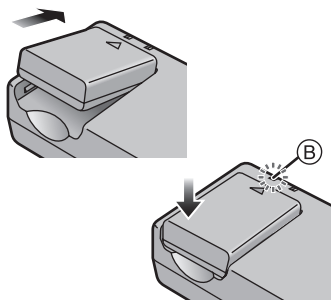


- The AC cable does not fit entirely into the AC input terminal. A gap will remain as shown below.



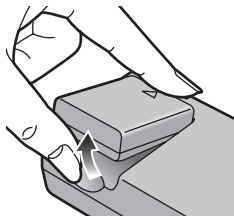
- The [POWER] Indicator (A) lights.
- The battery cannot be charged when the DC cable is connected to the AC adaptor.

2 Attach the battery to the AC adaptor.



- When the [CHARGE] Indicator (B) lights, charging starts.
- When the [CHARGE] Indicator (B) turns off (in about 90 minutes), charging is finished.

3 Detach the battery.



◇ Suggestions/Tips ◇

- After use, be sure to disconnect the AC cable.
- The battery becomes warm after use/charge or during charge. The camera also becomes warm during use. However, it is not a malfunction.
- **The battery and AC adaptor are designed only for this camera. Do not use them with any other equipment.**
- **Do not disassemble or alter the AC adaptor.**

About the Battery

Battery indication

The remaining battery power appears on the screen.
(This does not appear when using AC adaptor)



(Blinks in red): Recharge or replace the battery.

Charging time and available recording time

Measured under the following conditions:

- Temperature: 25°C/Humidity: 60%
- Recording once every 30 seconds, flash every other record.
- Using the battery (supplied) and 16 MB SD Memory Card (supplied) [Picture size: 2304×1728/Quality: Fine (When deleting all pictures after full use)]

	Charging time	Continuous recording/playback time (recordable number)
Supplied battery	Approx. 90 min.	Recording with LCD monitor Approx. 100 min. (equal to 200 still pictures)
		Recording with Viewfinder Approx. 120 min. (equal to 240 still pictures)
		Playback with LCD monitor Approx. 180 min.

The recording time (recordable number) and playback time depend on the condition.

Charging environment and charging error

- Charge the battery under temperature of 10–35°C.
(The battery should also be the same temperature.)
- When charging starts, the [CHARGE] Indicator lights.
If the charging error occurs, the [CHARGE] Indicator blinks at about 1 second cycles.

In this case, disconnect the AC adaptor from the electrical outlet, remove the battery and ensure both room and battery temperature are not too low or high and then charge it again.

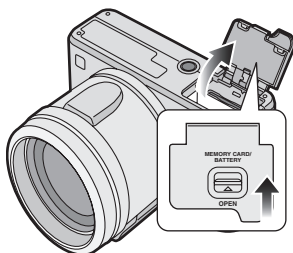
If the problem persists, consult the dealer or your nearest servicentre.

Inserting the Battery

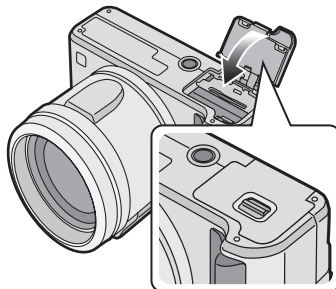
Preparation

- Check that the camera is turned off and that the lens is retracted.
- Close the flash.

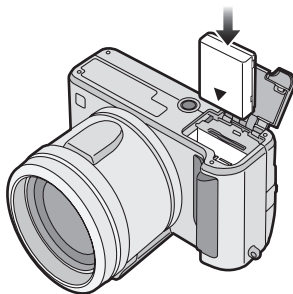
-
- 1** Slide the lever to open the card/battery door.



- 3** Close the card/battery door.



-
- 2** Insert the charged battery until it clicks.

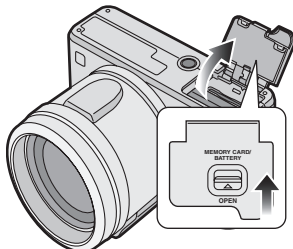


Removing the Battery

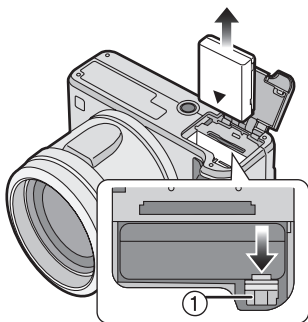
Preparation

- Check that the camera is turned off and that the lens is retracted.
- Close the flash.

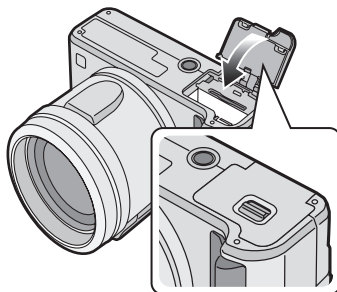
1 Slide the lever to open the card/battery door.



2 Slide the lock ① to remove the battery.



3 Close the card/battery door.



◇ Suggestions/Tips ◇

- If you will not use the camera for a long time, remove the battery.
- After the fully charged battery has been inserted for more than 24 hours, the clock setting is stored (in the camera) for max. 3 months after the battery was removed, in accordance with the elapsed time after the battery is inserted. (The time may be shorter if the battery is not charged sufficiently.) If more than 3 months has passed, the clock setting will be lost. In this case, set the clock again. (P20)
- **Do not open the card/battery door during the access to the card.**
- **The supplied battery is designed only for this camera. Do not use it with any other equipment.**

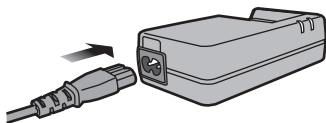
Using the AC Adaptor

You can use the camera without worrying about battery discharge by connecting to an AC adaptor.

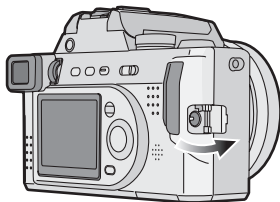
Preparation

- Check that the camera is turned off and that the lens is retracted.
- Close the flash.

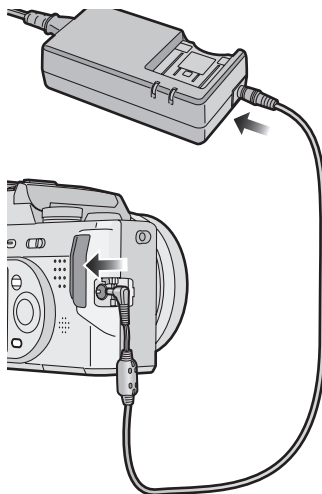
1 Connect the AC cable.



2 Open the [DC IN] terminal door.



3 Connect the DC cable.



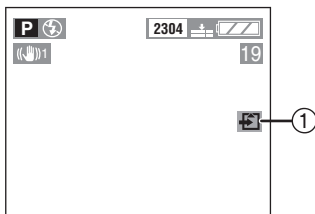
◇ Suggestions/Tips ◇

- Use the supplied DC cable.
If you use other DC cables, it may cause a malfunction.
- The camera becomes warm during use. This is not a malfunction.
- Disconnect the AC adaptor and DC cable when the camera is not in use.
- The battery cannot be charged in the camera even if the AC adaptor is connected.

About the Card

Access to the card

While the card is accessed, the card access indication ① lights.



When the card access indication ① lights, do not:

- turn the camera off.
- remove the battery or the card.
- disconnect the DC cable if you use the AC adaptor.

The card and the card contents may be damaged and the camera may not operate normally.

It is possible that data stored on the card can be damaged due to accidental erasure, static electricity, electrical noise or a defective card. We recommend storing precious data to your PC's hard drive. (P107, 108)

SD Memory Card (supplied) and MultiMediaCard (optional)

The SD Memory Card and MultiMediaCard are small, lightweight, removable external memory cards. The reading/ writing speed of an SD Memory Card is fast. The SD Memory Card is equipped with a Write-Protect switch that can inhibit writing and formatting a card. (When the switch is slid to the [LOCK] side, it is not possible to write or delete data on the card and format it. When the switch is unlocked, these functions become available.)

SD Memory Card



MultiMediaCard



◇ Suggestions/Tips ◇

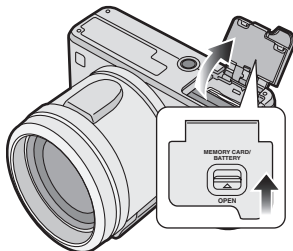
- The reading/writing speed of a MultiMediaCard is slower than an SD Memory Card. When a MultiMediaCard is used, the performance of certain features may be slightly slower than advertised.
- After recording motion images using the MultiMediaCard, the card access indication may appear for a while, but this is not a malfunction.
- Keep the Memory Card out of reach of children to prevent swallowing.

Inserting the Card

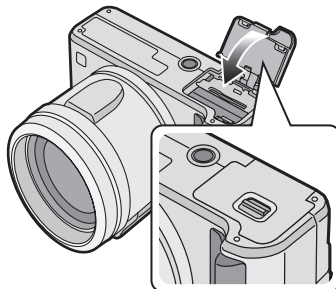
Preparation

- Check that the camera is turned off and that the lens is retracted.
 - Close the flash.
-

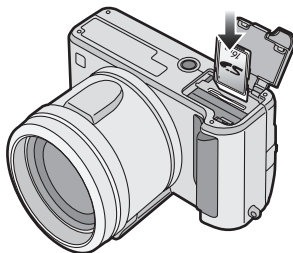
1 Slide the lever to open the card/battery door.



3 Close the card/battery door.



2 Insert the card with the label facing the front of the camera until it clicks.



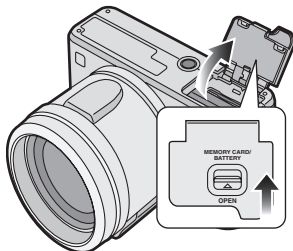
- Insert the card, pressing gently until it locks in place. If the card will not insert freely, it may be reversed. Do not force the card.
 - Do not touch the connection terminals on the back side of the card.
-

Removing the Card

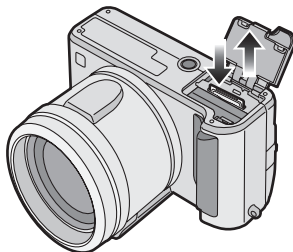
Preparation

- Check that the camera is turned off and that the lens is retracted.
- Close the flash.

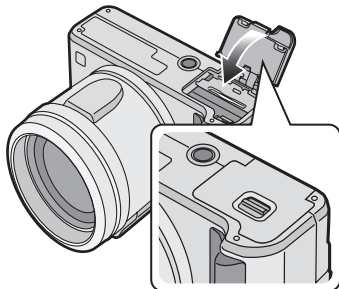
1 Slide the lever to open the card/battery door.



2 Push the card until it clicks, then pull the card out upright.



3 Close the card/battery door.

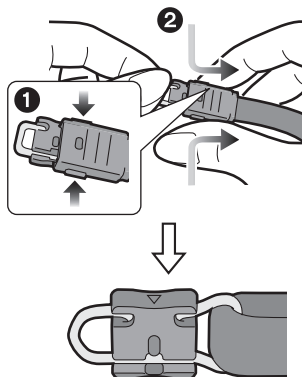


◇ Suggestions/Tips ◇

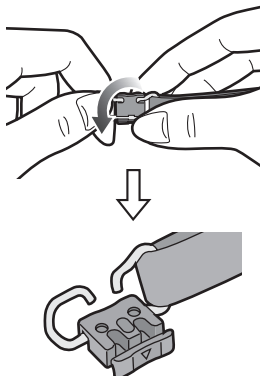
- The card may be damaged if it is removed while the camera is on.
- If the card/battery door cannot be completely closed, remove the card and insert it again.
- If the card cannot be fully inserted, check the direction of the card.
- We recommend using Panasonic's SD Memory Card. (Use only the genuine card.)
- The card may be damaged if it is not fully inserted.

Attaching the Strap

- 1 **1** Pressing both sides of the cover,
2 Pull out the black strap holder completely.



- 2 **2** Detach the black strap holder from the metal fitting.

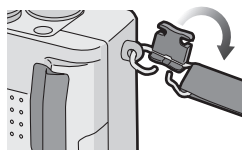


- When the black strap holder is completely detached, attach it again as above.

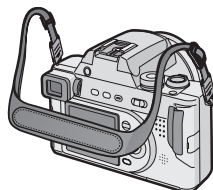
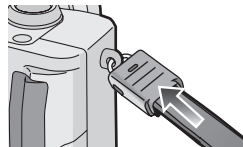
- 3 **3** Pass the metal fitting through the eyelet of the camera.



- 4 **4** Rotate the black strap holder in the opposite direction until it clicks.



- 5 **5** Slide the cover until it is attached firmly.



- Attach the strap to the other side of the camera being careful not to twist it.
- Attach the strap so that you can see "Panasonic" logo.
- Check that the strap is firmly attached to the camera.

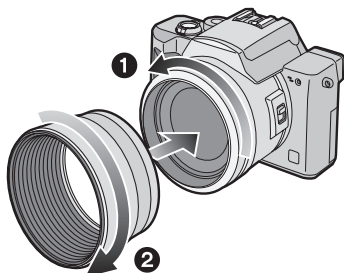
Attaching the Lens Hood/Lens Cap

Preparation

- Check that the camera is turned off and that the lens is retracted.
- Close the flash.

■ Lens Hood

- 1 Detach the lens ring.
- 2 Attach the lens hood.



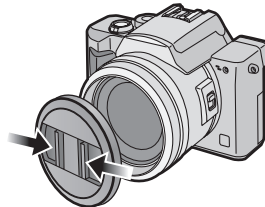
- In bright sunlight or when there is backlight, the lens hood will minimize lens flare and ghosting.
- The lens hood cuts off excess lighting and improves the picture quality.
- When detaching the lens hood, refer to P116.

■ When attaching the lens hood

- When taking pictures with flash, photo flash is interrupted by the lens hood and the bottom of the screen becomes dark. (vignetting effect)
- When taking pictures with flash, we recommend detaching the lens hood.

■ Lens Cap

- 1 Attach the lens cap.



- Be careful not to lose the lens cap.

■ When attaching the lens cap

- When you turn the camera off, carry the camera or play back the pictures, attach the lens cap to protect the surface of the lens.
- Detach the lens cap before turning on the camera in the recording mode.
- Consult the dealer or your nearest servicentre if you lose the supplied accessories. (You can purchase the accessories separately.)

Setting the Date/Time (Clock Set)

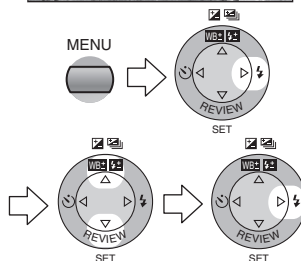
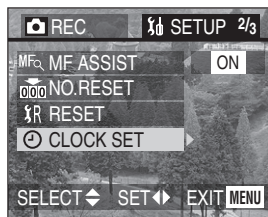
Initial setting

The clock is not set when the camera is shipped. When you turn the camera on, the clock setting screen appears.

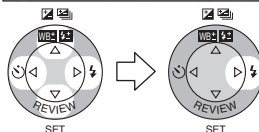
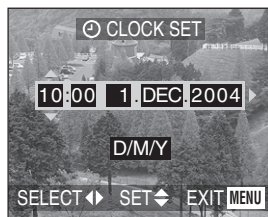


When pressing the [MENU] button, the screen shown in step 2 appears. Set the clock on it.

1 Select [CLOCK SET] from the [SETUP] menu. (P22)

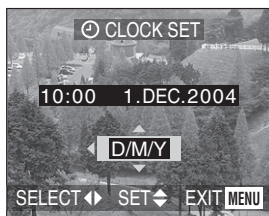


2 Set date and time.



- ◀/▶: Select the desired item.
- ▲/▼: Set date and time.

3 Select [M/D/Y], [D/M/Y] or [Y/M/D].



- Close the menu by pressing the [MENU] button 2 times after finishing the setting.
- Check if the clock setting is correct, after turning the camera off and on.

◇ Suggestions/Tips ◇

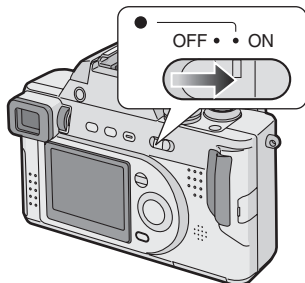
- You can set the year from 2003 to 2099. The 24-hour system is used.
- After the fully charged battery has been inserted for more than 24 hours, the clock setting is stored (in the camera) for max. 3 months after the battery was removed, in accordance with the elapsed time after the battery is inserted. (The time may be shorter if the battery is not charged sufficiently.) If more than 3 months has passed, the clock setting will be lost. In this case, set the clock again.

■ Date Printing

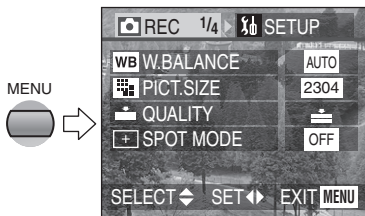
- You can set the date printing in DPOF print setting on this camera. (P93)
- Using the supplied software, [SD Viewer for DSC], it is possible to have the date imprinted on the picture. For details, please read the supplied operating instructions for PC connection.
- When you ask photo studios for printing, be sure to order the printing of the date. For further information, ask a photo studio. Depending on the studio, it may not be printed.

Setup Menu

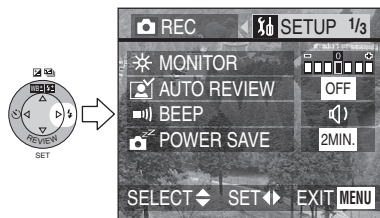
1 Turn the camera on.



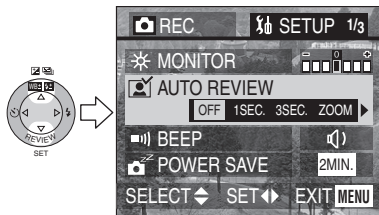
2 Press the [MENU] button.



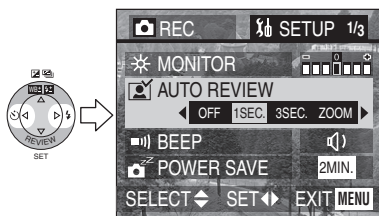
3 Select the [SETUP] Menu.



4 Select the desired item.











5 Set the desired value.












- Close the menu by pressing the [MENU] button after finishing the setting.

You can control the following items on [SETUP] Menu.

Menu	Functions
 MONITOR/ FINDER	Adjust the brightness of the LCD monitor (when pictures appear on the LCD monitor) or Viewfinder (when pictures appear on the Viewfinder) in 7 steps.
 AUTO REVIEW* ¹	<ul style="list-style-type: none"> • [OFF]: The recorded picture does not automatically appear. • [1SEC.]: The recorded picture automatically appears on the screen for about 1 second. • [3SEC.]: The recorded picture automatically appears on the screen for about 3 seconds. • [ZOOM]: The recorded picture automatically appears on the screen for about 1 second. Then it is enlarged 4 times and appears for about 1 second. This mode is useful to confirm the focus. • In Motion image mode [], auto review function is not activated. • When using burst mode or auto bracket, the auto review function works while recording the data into the card regardless of the setting on the auto review function. (The picture is not enlarged.) • When using pictures with audio, the auto review function works while recording the audio or the data into the card regardless of the setting on the auto review function. (The picture is not enlarged.)
 BEEP	<ul style="list-style-type: none"> • []: The operational sound turns high. • []: The operational sound turns low. • []: The operational sound turns off.
 POWER SAVE	<ul style="list-style-type: none"> • [2MIN.]/[5MIN.]/[10MIN.]: The camera is automatically turned off if it has not been used for a predetermined amount of time. (Press the shutter button or turn the camera off and on to cancel the power save mode.) • [OFF]: The camera is not automatically turned off. • When using the AC adaptor/connecting to a PC or printer/recording motion images/playing back motion images/during Slide Show, the power save mode is not activated.

*¹ Recording mode only

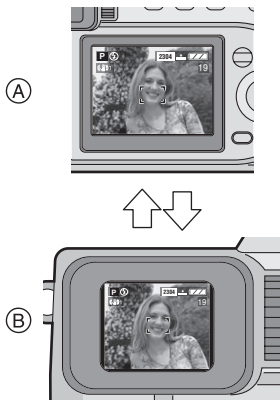
Menu	Functions
MF _Q MF ASSIST* ¹	In manual focus, assistance screen appears on the centre of the screen to facilitate focusing on the subject. (P63)
 NO.RESET* ¹	Set this when you want to start the file number of the picture from 0001 on the next recording. (The folder number is updated, and the file number starts from 0001.) <ul style="list-style-type: none"> The folder number can be assigned from 100 to 999. When the folder number reaches to 999, it cannot be reset. We recommend formatting the card after saving the data on a PC or other.
 RESET* ¹	The camera is reset to the initial settings. However, the folder number and the clock settings are not changed.
 CLOCK SET	Change the date and time. (P20)
 USB MODE	Set before connecting to a PC or a printer. (P105)
 LANGUAGE	Set to the language on the menu screen from the following 7 languages. Set to the desired language with ◀/▶ and determine it with ▼. <ul style="list-style-type: none"> [ENGLISH]: The menu screen in English [DEUTSCH]: The menu screen in German [FRANÇAIS]: The menu screen in French [ESPAÑOL]: The menu screen in Spanish [ITALIANO]: The menu screen in Italian [中文]: The menu screen in Chinese (Simplified) [日本語]: The menu screen in Japanese When you set to other language by mistake, select [] from the menu icons to set the desired language.
 PLAY ON LCD* ²	When Viewfinder is selected in the recording mode, the picture automatically appears on the LCD monitor in review or playback. (P26)
 VOLUME* ²	The volume of speakers can be adjusted in 7 steps. <ul style="list-style-type: none"> When you connect the camera to a TV, the volume of the speakers of the TV is not changed.
 VIDEO OUT* ²	<ul style="list-style-type: none"> [NTSC]: Video output is set to NTSC system. [PAL]: Video output is set to PAL system. (P104)

*¹ Recording mode only*² Playback mode only

Using the LCD Monitor/Viewfinder

Switching the screen to be turned on

Press the [EVF/LCD] button to switch to the screen you would like to turn on.



- Ⓐ LCD monitor (LCD)
- Ⓑ Viewfinder (EVF)

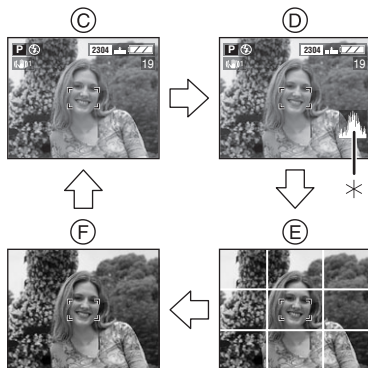
- When the LCD monitor turns on, the Viewfinder turns off. (and vice versa)

Selecting the screen to be used

Press the [DISPLAY] button to switch to the screen to be used.

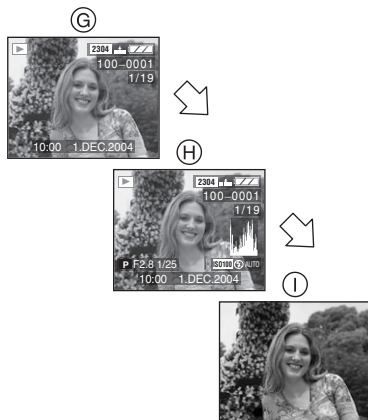
- When the menu screen appears, during multi playback or during playback zoom, the [DISPLAY] button is not activated.

In recording mode



- Ⓒ Display
- Ⓓ Display with histogram
- Ⓔ Nondisplay (Recording guide line)
- Ⓕ Nondisplay
- *Histogram

In playback mode



- Ⓖ Display
- Ⓗ Display with recording information and histogram
- Ⓘ Nondisplay

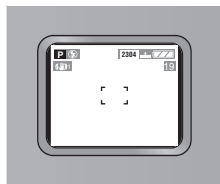
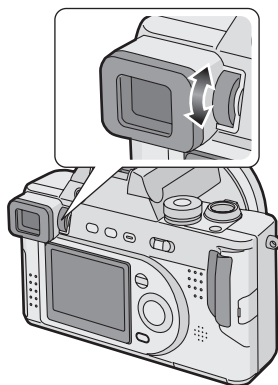
■ Diopter adjustment

This feature is useful for users who wear corrective lenses and prefer to use the Viewfinder.

Preparation

- Press the [EVF/LCD] button to display the Viewfinder.

1 Adjust the diopter, rotating the diopter adjustment dial.



■ Monitor priority

When setting [PLAY ON LCD] to [ON] on the [SETUP] menu (P24), the LCD monitor is turned on in the following cases.

You can save the time to switch the display to the LCD monitor even when using the Viewfinder in recording.

- When the recording mode is switched to playback mode.
- When reviewing pictures (P34)
- When turning the camera on in playback mode.

■ Recording guide line

You can achieve balanced pictures by aligning the subject on the cross point of the horizontal and vertical guide lines. You can also take pictures easily by adjusting the horizon to the guide line.



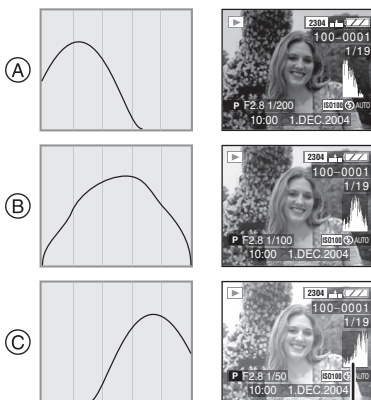
You can take pictures with well-designed composition by watching the size and the balance of subjects.

About the Histogram

- A histogram is a graph that displays brightness along the horizontal axis (black to white) and the number of pixels at each brightness level on the vertical axis.
- It allows the camera user to easily check the way a picture is being exposed.
- It is very useful if manual adjustments of the lens aperture and shutter speed are available, especially in those situations where automatic exposure may be difficult due to uneven lighting. Using the histogram feature will allow you to get the best performance from the camera.

- When the values are concentrated to the left as (A), the picture is under exposed.
- When the values in the histogram are distributed as (B), the exposure is adequate and the brightness is well-balanced.
- When the values are concentrated to the right as (C), the picture is over exposed.

Example of histogram



- (A) Under Exposed
(B) Properly Exposed
(C) Over Exposed

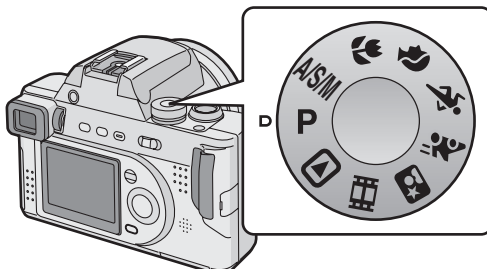
*Histogram

◇ Suggestions/Tips ◇

- **When the brightness of the picture and the histogram do not match each other, the histogram turns yellow.**
- **The histogram turns yellow in the following cases.**
 - When the flash is activated
 - When the flash is closed
 1. Aperture-priority AE/
Shutter-priority AE:
When the brightness of the screen is not correct or when the exposure is not adequately adjusted
 2. Manual exposure:
When the shutter speed is slower than 1/13th
 3. In modes other than the above:
When the brightness of the screen is not correct in dark places
- The histogram does not appear when in Motion image mode [H], during multi playback and playback zoom.
- The histogram in recording and playback may not match each other.
- The histogram in this camera does not match the one displayed in image editing software on PC, etc.
- The histogram in the recording mode is an approximation.

The Mode Dial

Select the desired mode turning the mode dial.



P : Programme AE mode (P29)

The aperture value and the shutter speed are automatically adjusted.

A/S/M : A/S/M mode (P50–52)

A : Aperture-priority AE (P50)

The shutter speed is adjusted automatically according to the aperture value you set.

S : Shutter-priority AE (P51)

The aperture value is adjusted automatically according to the shutter speed you set.

M : Manual exposure (P52)

The aperture value and the shutter speed are manually adjusted.

🌸 : Macro mode (P55)

This allows you to get closer to the subject up to 5 cm (Wide).

👤 : Portrait mode (P56)

This allows you to easily achieve the depth of focus effect. The subject stands out in front of an unfocused background.

🏃 : Sports mode (P57)

This allows you to record still action pictures of outdoor sports easily.

🏎 : Panning mode (P58)

This allows you to record a subject in motion sharply while blurring the background.

🌃 : Night portrait mode (P60)

This allows you to record the subject clearly in front of beautiful night illumination scenery.

🎥 : Motion image mode (P61)

This allows you to record motion images.

▶ : Playback mode (P43)

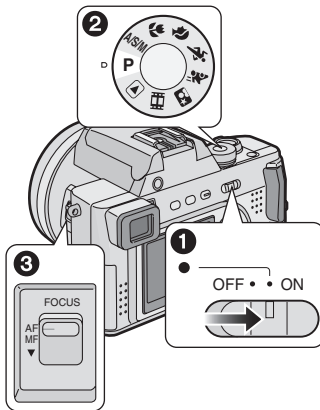
This allows you to play back recorded pictures.

Taking Pictures

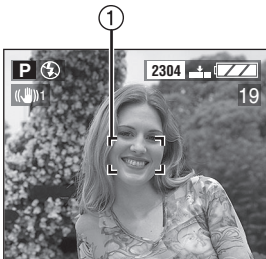
Preparation

- Insert the charged battery (P12) or connect the AC adaptor (P14).
- Insert the card. (P16)
- Remove the lens cap.

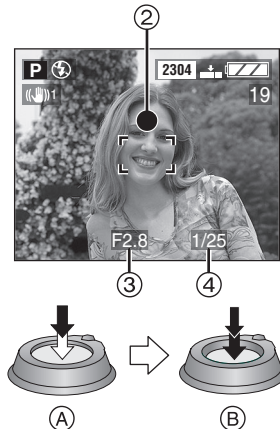
- 1 Turn the camera on.
- 2 Select Programme AE mode [P].
- 3 Slide the focus switch to [AF].



- 2 Aim the AF area ① to the point you want to focus.



- 3 Focus on the subject to take the picture.



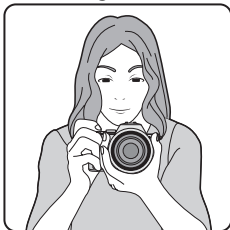
- (A): Press the shutter button halfway to focus.
- (B): Press the shutter button fully to take the picture.
- The focus indication ② lights and then the aperture value ③ and the shutter speed ④ appear.
- When the focus indication is blinking, the subject is not focused. Press the shutter button halfway and focus on the subject again.

■ Posture to take good pictures

To take pictures without blurring:

- Hold the camera gently with both hands, keep arms stationary at your side and stand with your feet slightly apart.
- Check that the camera is not shaken when pressing the shutter button halfway.
- After pressing the shutter button, keep the camera stationary until the picture appears on the screen.
- In the following cases, keep the camera stationary for a long time.
 - Slow sync./Red-eye reduction [⚡👁] (P36)
 - In Night portrait mode [👤] (P60)
 - When you set the shutter speed slower (P33, 51, 52)

When recording with LCD Monitor



When recording with Viewfinder

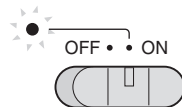


Position of feet



- Hold the camera firmly with your right hand.
- Put your left hand on the lens ring to keep the camera stationary.
- Do not cover the microphone with your finger or other objects.
- Do not touch the lens barrel.

■ Power indicator



Lighting:

- When turning the camera on

Blinking:

- When the card/battery door is open
- When the card is not inserted
- When there is no remaining capacity on the card
- When the card is locked in the recording mode
- When the remaining battery power is low (blinking slowly)

■ Focusing

- The focus range is 30 cm – ∞ (Wide), 2 m – ∞ (Tele).
- If you press the shutter button fully without prefocusing, pictures may be blurry or unfocused.
- When the subject is focused, the camera beeps 2 times. If not, it beeps 4 times.
- If the camera will not focus after a few tries, turn it off and on and try again.
- Refer to P23 if you want to turn the operational sound off.

- In the following cases, the camera cannot focus on subjects properly in Programme AE mode.
 - When including both near and distant subjects in a scene
 - When there is dirt on the glass between the lens and the subject
 - When there are illuminated or glittering objects around the subject
 - When taking a picture in a dark place
 - When the subject moves fast
 - When the scene is poor in contrast
 - When jitter occurs
 - When recording a very bright subject

We recommend taking pictures using manual focus (P63), prefocus (P64) or AF/AE lock.

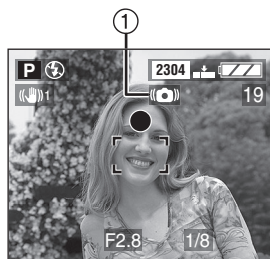
- Even if the focus indication appears and the subject is focused, it is cancelled when you release the shutter button. Press the shutter button halfway again.

■ Exposure

- If the exposure is not adequate, the indication of the aperture value and the shutter speed on the screen turns red. (However, the aperture value and the shutter speed do not turn red when the flash is activated.)
- The brightness of the screen may differ from that of recorded pictures. In particular, when taking pictures in dark places with slow shutter, the subject looks dark on the screen, but the actual picture is bright.
- When most of the subjects in the screen are bright (e.g. blue sky on a clear day, snowy field, etc.), the recorded pictures may become dark. In this case, compensate the exposure. (P39)

■ Jitter (camera shake)

- When jitter could occur, the jitter alert ① appears.



- When the jitter alert appears, we recommend using a tripod. If you cannot use a tripod, be careful of how you hold the camera. (P30)
- Be careful of jittering when pressing the shutter button.

■ Care for the camera

- Check to make sure there is no stain or dirt on the lens.
- Do not touch the lens directly.
- Do not cause impact to the lens or lens barrel.
- When turning the camera on in the recording mode, the lens barrel comes out. Check to make sure there are no obstacles in front of the lens.
- Take care not to touch or stain the surface of the lens. When the lens becomes dirty or dust attaches to the lens, check if the lens is retracted, use a commercial blower brush to remove dust or dirt and wipe the lens with a dry, soft cloth. If you use solvents such as benzene, alcohol or thinner, the camera may be discoloured or broken.
- When using the camera in a sandy or dusty place, be careful not to let dirt, grit or seawater come into the camera.

◇ Suggestions/Tips ◇

- When brightness has changed due to the zoom or the movement of the camera, the lens may click and the picture on the screen may be drastically changed. However, the pictures are not affected. The sound is caused by automatic adjustment of the aperture. It is not a malfunction.
- When pressing the shutter button halfway, the screen may become dark or bright for a moment; this is not a malfunction. This is caused by adjusting the aperture value.
- If the camera is shaken while the camera is turned off, you may hear some internal mechanical movement. This is not a malfunction.
- We recommend setting the clock again before taking pictures. (P20)
- When the time for power save is set (P23), the camera is automatically turned off if you do not operate within the set time. When operating the camera again, press the shutter button or turn the camera off and on.

■ AF/AE Lock (AF: Auto focus/ AE: Auto exposure)



When recording a picture of people with a composition as the above picture, you cannot focus on the subject because it is out of AF area in usual operation.

In this case,

1. Aim the AF area to the subject.
 2. Press the shutter button halfway to fix the focus and the exposure.
 - When the subject is focused, the focus indication lights.
 3. Keeping the focus and the exposure fixed, move the camera as you want to compose the picture.
 4. Press the shutter button fully.
- You can repeatedly retry AF/AE lock before pressing the shutter button.

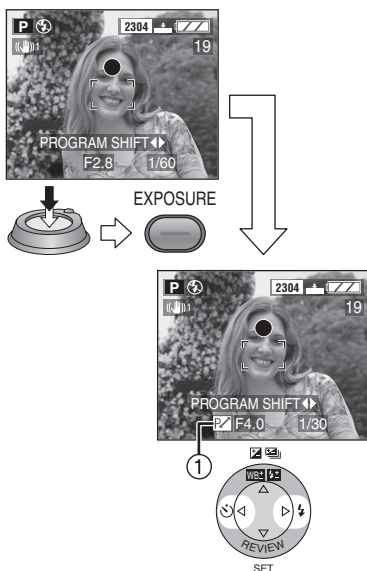


■ Programme shift

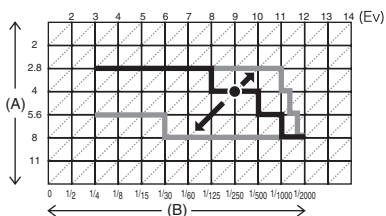
In Programme AE mode, you can change the preset aperture value and the shutter speed under the same exposure. This is called Programme shift.

By this function, you can make the background more blurred (by decreasing the aperture value) or record the subject in motion clearer (by setting to slow shutter speed) in Programme AE mode.

- Press the shutter button halfway and then press the [EXPOSURE] button while the aperture value and the shutter speed appear (for 10 seconds). Then press ◀▶ to activate the Programme shift.



- When the Programme shift is activated, the Programme shift indication ① appears on the screen.



(A): Aperture value

(B): Shutter speed

◇ Suggestions/Tips ◇

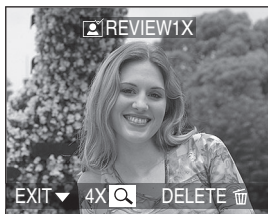
- Programme shift can be set in Macro mode (P55) too.
- If the exposure is not adequate when pressing the shutter button halfway, the shutter speed turns red.
- When Programme shift can be set, you cannot switch the flash mode or set the self-timer. Press the [EXPOSURE] button to cancel. (P49)
- When 10 or more seconds have passed after the Programme shift becomes effective, the status to activate the Programme shift is cancelled and returned to the Programme AE mode. However, the setting on the Programme shift is memorised.
- Programme shift is cancelled when turning the camera off.
- The Programme shift may not be activated depending on the brightness of the subject.

Checking the Recorded Picture (Review)

Preparation

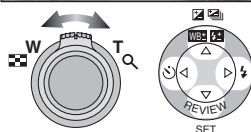
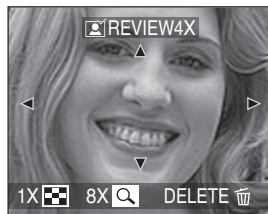
- In Motion image mode [RECORDING], review function is not activated.

1 Press \blacktriangledown .



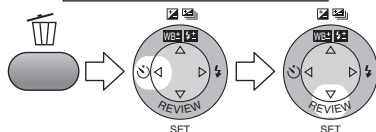
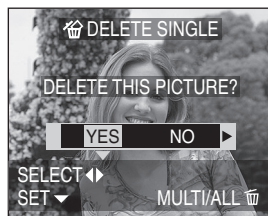
- The last recorded picture appear for about 10 seconds.
- Press the shutter button halfway or \blacktriangledown to cancel the review.
- You can check the previous or following picture with $\blacktriangleleft/\blacktriangleright$.
- When the recorded pictures are too bright or dim, compensate the exposure. (P39)

2 Enlarge and shift the picture.



- Q : 1X \rightarrow 4X \rightarrow 8X
- Q : 8X \rightarrow 4X \rightarrow 1X

Deleting the recorded picture during the review



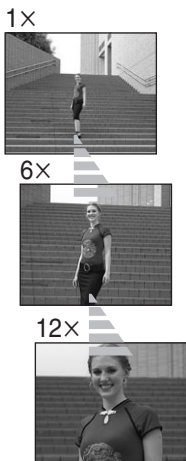
- Once deleted, pictures cannot be recovered.
- Multi pictures or all pictures can be deleted. Read P47 or P48 to operate them.

Using the Optical Zoom

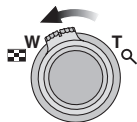
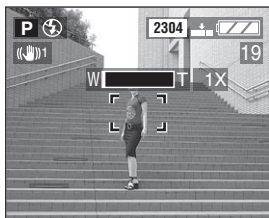
You can make people and subjects appear closer with the 12 times optical zoom, and landscapes can be recorded in wide angle.

Preparation

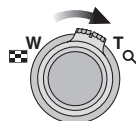
- Set the mode dial except for [📹]. (P28)



■ To make subjects appear further away (Wide)



■ To make subjects appear closer (Tele)



◇ Suggestions/Tips ◇

- The picture may be slightly distorted according to the lens. The distortion will increase as you make subjects wider and closer.
- When using the zoom lens at high magnification, the quality of the picture can be enhanced if a tripod is used. At high magnification, even small movements can cause a slight decrease in picture sharpness.
- The indicated zoom magnification is an approximation.

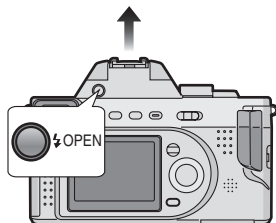
Taking Pictures using the Built-in Flash

Preparation

- Set the mode dial except for []/[]. (P28)

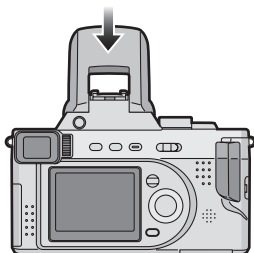
To open the flash

Press the [⚡ OPEN] button.



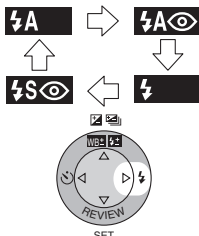
To close the flash

Press the flash until it clicks.



- Be sure to close the flash when not in use.

Switching the flash setting



⚡A : AUTO

The flash is automatically activated according to the recording condition.

⚡A with eye : AUTO/Red-eye reduction

The flash is automatically activated according to the recording condition. It reduces the red-eye phenomenon (eyes of the subject appear red in photo flash) by lighting the flash before the actual recording of the picture.

Use this when you take pictures of people in low lighting conditions.

⚡ : Forced ON

The flash is activated every time a picture is recorded forcibly.

Use this when your subject is back-lit or under fluorescent light.

⚡S with eye : Slow sync./Red-eye reduction

When you take a picture with a dark background landscape, it makes the shutter speed slow when the flash is activated, so that the dark background landscape will become bright. Simultaneously it reduces the red-eye phenomenon.

Use this when taking pictures of people with the dark background.

⚡ with crossed-out eye : Forced OFF

When you do not open the flash, this mode is set. Even in dark places, the flash is not activated.

Use this when taking pictures in places where use of the flash is not allowed.

Available flash settings

	P	A	S	M						
A	○	○	○	○	○	○	○	○	—	—
A	○	○	○	○	○	○	○	○	—	—
	○	○	○	○	○	○	○	○	—	—
S	○	○	—	—	○	—	—	—	○	—
	○	○	○	○	○	○	○	○	○	○

The available flash range to take pictures

ISO sensitivity	Available flash range
ISO AUTO	40 cm – 4 m
ISO100	40 cm – 2 m
ISO200	60 cm – 2.8 m
ISO400	80 cm – 4 m

- The available flash range is an approximation.
- Refer to P30 for the focus range.

Shutter speed for each flash mode

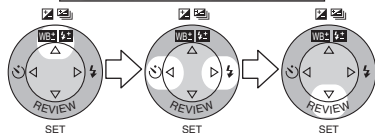
Flash mode	Shutter speed
A : AUTO	1/60 – 1/2000
A : AUTO/Red-eye reduction	1/60 – 1/2000
: Forced ON	1/60 – 1/2000
S : Slow sync./ Red-eye reduction	1 – 1/2000
: Forced OFF	1/4 – 1/2000
	8 – 1/2000 (in Night portrait mode [])

- Refer to P54 for the A/S/M modes.

■ Adjusting flash output

Adjust the flash output when the subject is small or reflection ratio is extremely high or low.

- 1 Press **▲** until [**FLASH**] appears on the screen to set the flash output.



- You can adjust this from -2 EV to $+2$ EV in steps of $1/3$ EV.
- The determined flash output is memorised even if the camera is turned off.

◇ Suggestions/Tips ◇

- In Night portrait mode [**★**], flash setting is fixed to Slow sync./Red-eye reduction [**SR**].
- In Motion image mode [**MF**] or when the flash is closed, flash setting is fixed to the Forced OFF [**OFF**].
- When using the flash in ISO AUTO setting, the ISO sensitivity is automatically adjusted from ISO50 to ISO400. To avoid noises, decrease the ISO sensitivity.
- **Do not stare at the photo flash from close proximity when using the flash.**
- **If you bring the flash too close to the subjects, they may be distorted or discoloured by its heat and lighting.**

- **Do not cover the photo flash with your fingers or any other items.**
- If the subject is too close when using the flash, the picture may be over exposed.
- When the jitter alert appears, we recommend using the flash.
- When you set to burst mode or auto bracket, only 1 picture is recorded for every flash activated.
- The flash icon turns red when activating the flash and pressing the shutter button halfway.
- When the flash is being charged, the flash icon blinks red, and you cannot take a picture even when you press the shutter button fully.
- **When taking a picture with the flash, we recommend removing the lens hood. In some cases it may not allow the scene to be illuminated properly.**
- When taking a picture with the flash, the white balance will be automatically adjusted [except for **☀**] (Daylight) and [**WB**] (Flash)], but the white balance may not be properly adjusted when the photo flash is insufficient.
- When the shutter speed is fast, the flash effect may not be sufficient.
- To avoid noises, we recommend setting each item on [PICT.ADJ.] to [LOW]. (P77)
- Refer to P72 for the ISO sensitivity.
- Refer to P82 for the external flash.

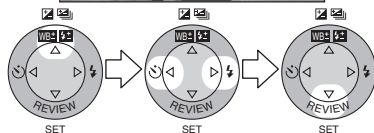
Compensating the Exposure

Use this function when you cannot achieve appropriate exposure due to the difference of brightness between the subject and the background.

Preparation

- Set the mode dial except for []/[]. (P28)

- Press **▲** until [**EXPOSURE**] appears on the screen to compensate the exposure.



- You can compensate from -2 EV to $+2$ EV in steps of $1/3$ EV.

◇ Suggestions/Tips ◇

- EV is an abbreviation of Exposure Value, and it is the amount of light given to the CCD by the aperture value and the shutter speed.
- The compensation range of the exposure will be limited depending on the brightness of the subject.
- The exposure compensation value appears on the lower left of the screen.
- The exposure value is memorised even if the camera is turned off.
- You cannot compensate the exposure in manual exposure.

Taking Pictures using Auto Bracket

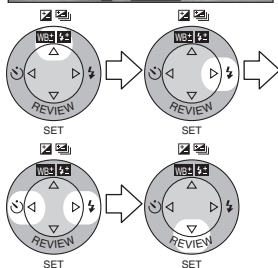
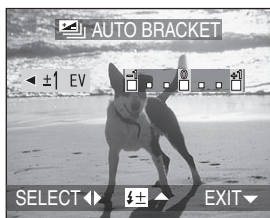
In this mode, 3 pictures are automatically recorded by each press of the shutter button according to the compensation range of the exposure.

You can select the desired exposure among the 3 types of pictures.

Preparation

- Set the mode dial except for []/[]. (P28)

- Press **▲** until [] **AUTO BRACKET** appears on the screen to set the compensation range of the exposure.



- You can select the exposure from -1 EV to $+1$ EV in steps of $1/3$ EV.
- When you do not use auto bracket, select [OFF].

◇ Suggestions/Tips ◇

- When setting the auto bracket, the auto bracket icon appears on the lower left of the screen.
- Once you take a picture, auto bracket will be cancelled automatically.
- When taking pictures using auto bracket after the exposure compensation, the pictures are based on the compensated exposure. When the exposure is compensated, the compensated exposure value appears on the lower left of the screen.
- When the flash is activated, you can take only 1 picture. Auto bracket setting cannot be cancelled.
- When setting auto bracket, you cannot take a picture with audio.
- When setting auto bracket and the burst mode simultaneously, auto bracket will be performed.
- The exposure may not be compensated with auto bracket depending on the brightness of the subject.

Taking Pictures with the Self-timer

Preparation

- Set the mode dial except for [P]/[H]. (P28)

1 Switch the self-timer setting.



: Self-timer set to 10 seconds

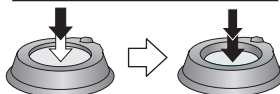


: Self-timer set to 2 seconds



No display (cancelled)

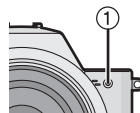
2 Focus on the subject to take the picture.



- If you press the [MENU] button when the self-timer is set, the self-timer setting is cancelled.

◇ Suggestions/Tips ◇

- When using a tripod or other cases, setting the self-timer to 2 seconds is convenient to stabilize the jitter caused by pressing the shutter button.
- The self-timer indicator ① blinks and the shutter is activated after 10 seconds (or 2 seconds).
- When pressing the button fully at a stroke, the subject is automatically focused just before recording pictures. (When setting the manual focus, the focus is fixed.)
- When setting the self-timer in the burst mode, you can take only 1 picture.
- We recommend using a tripod when setting the self-timer.



Taking Pictures using Burst Mode

Preparation


- Set the mode dial except for [P]/[H]. (P28)

1 Switch the burst mode setting.



 : High speed

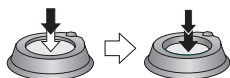


 : Low speed



No display (cancelled)





2 Take pictures.



- Keep pressing the shutter button fully to activate the burst mode.

◇ Suggestions/Tips ◇

■ Number of pictures recorded in burst mode

	Burst speed	Number of recordable pictures	
			
 H	4 frames/second	max. 5 frames	max. 7 frames
 L	2 frames/second	max. 5 frames	max. 7 frames

- It is possible to record 4 frames in 1 second in burst mode at a shutter speed higher than 1/60th.
- If the flash is activated, you can record only 1 frame.
- You cannot take pictures with audio in the burst mode.
- When setting auto bracket and the burst mode simultaneously, auto bracket will be performed.
- Burst mode will not perform as described if a MultiMediaCard is used in place of an SD Memory Card. The reading/writing speed of a MultiMediaCard is slower than that of an SD Memory Card.

Playing Back Pictures

Preparation

- Set the mode dial to [P] (P28)

1 Select the picture.



- Press ◀ to play back the previous picture.
- Press ▶ to play back the next picture.
- The picture following the last one is the first picture.

■ Fast forwarding/Fast rewinding

When you keep pressing ◀/▶ during playback, the file number and the page number are updated. If you release ◀/▶ when the number of the desired picture appears, you can play back the picture.

▶: Fast forward

◀: Fast rewind

- The number of files forwarded/rewound at a time depends on how long you hold down ◀/▶.
- The longer you hold down ◀/▶, the more pictures you can forward/rewind at a time.

- The setting of the number of files forwarded/rewound at a time varies depending on the total number of the recorded pictures.
- When releasing ◀/▶, the number of file forwarded begins from 1.
- While forwarding or rewinding a large number of pictures by holding down ◀/▶, once release ◀/▶ before reaching the picture to be played back, then press ◀/▶ to forward/rewind pictures until the desired picture appears.
- In review playback in the recording mode or multi playback, the picture can only be forwarded or rewound one by one.

◇ Suggestions/Tips ◇

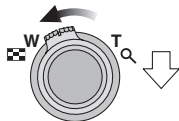
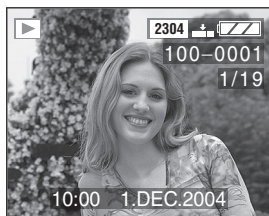
- This camera is based on the DCF standards (Design rule for Camera File system) which were established by the Japan Electronics and Information Technology Industries Association (JEITA).
- When changing the folder name or file name on PC, the pictures may not be played back.
- The file format that can be played back with this camera is JPEG. (There are also pictures that cannot be played back in JPEG format.)
- When playing back pictures that have been recorded with other equipment, the picture quality may be deteriorated and pictures may not be played back.
- When playing back a file out of standard, the folder/file number is indicated by [—] and the screen may turn black.
- The interference fringe may appear on the screen depending on the subject. This is called moire. This is not a malfunction.

9 Pictures Multi Playback

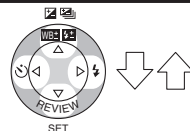
Preparation

- Set the mode dial to [P]. (P28)

1 Switch to multi screen.

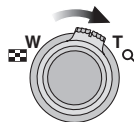


2 Select the pictures.



To return to the normal playback

Rotate the zoom lever towards [Q].



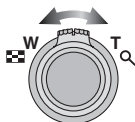
- The picture with the number coloured in yellow appears.

Using the Playback Zoom

Preparation

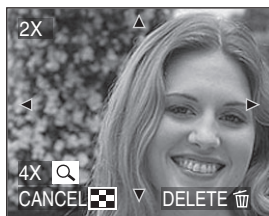
- Set the mode dial to [▶]. (P28)

1 Enlarge the picture.



- Q : 1X → 2X → 4X → 8X → 16X
- Q : 16X → 8X → 4X → 2X → 1X

2 Shift the picture.



To delete a picture during the playback zoom

Press the [🗑] button.

When the confirmation screen appears, press ◀ to select [YES], and press ▼. (P46)

◇ Suggestions/Tips ◇

- The more the picture is enlarged, the more its quality deteriorates.
- The playback zoom may not operate if pictures have been recorded with other equipment.

Deleting Pictures

Preparation

- Set the mode dial to [P]. (P28)

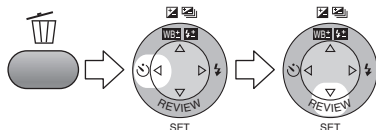
To delete single picture

1 Select the picture to be deleted.



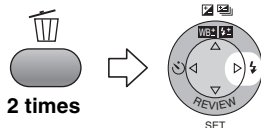
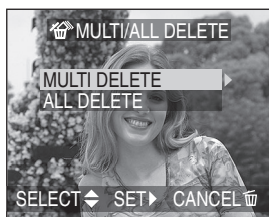
- Press ◀ to play back the previous picture.
- Press ▶ to play back the next picture.

2 Delete the picture.

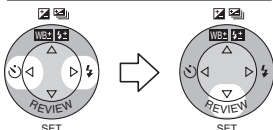


To delete multi pictures

1 Select [MULTI DELETE].

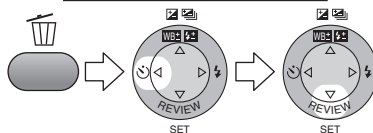
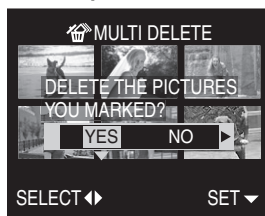


2 Select the pictures to be deleted.



- The selected pictures appear with [🗑️]. When ▼ is pressed again, the setting is cancelled.
- The icon [🔒] blinks red if the selected picture cannot be deleted. Cancel the protect setting. (P94)

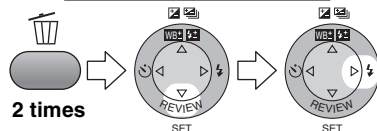
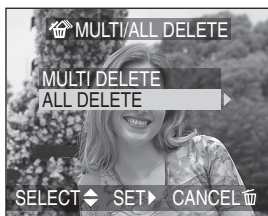
3 Delete the pictures.



- It is possible to delete up to 50 pictures all at once.

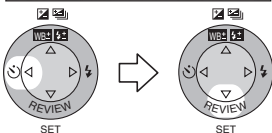
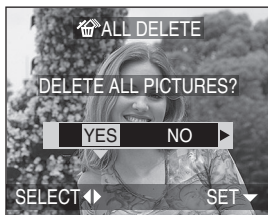
■ To delete all pictures

1 Select [ALL DELETE].



2 times

2 Delete all of the pictures.




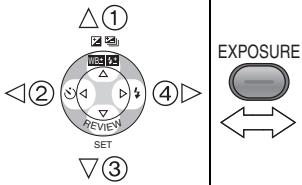
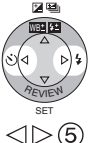
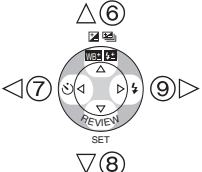

◇ Suggestions/Tips ◇

- Once deleted, pictures cannot be recovered. Please double-check before deleting pictures.
- Pictures that are protected (P94) or not of DCF standards (P43) are not deleted.
- Do not turn off the camera while deleting.
- When the remaining battery power (P11) is low, use the AC adaptor.


About the EXPOSURE Button

How to use the [EXPOSURE] button

When pressing the [EXPOSURE] button in Programme AE mode [**P**], Macro mode [] and A/S/M mode [**A/S/M**], the operation of the cursor button changes as follows.

Normal	Exposure setting mode	
	Programme AE mode/ Macro mode 	A/S/M mode 
F4.0 1/30	PROGRAM SHIFT  P F4.0 1/30	▲F4.0▼ ◀1/30▶

- ① Exposure compensation, etc.
- ② Self-timer
- ③ Review
- ④ Flash
- ⑤ Programme shift setting
- ⑥ Close the aperture
- ⑦ Set faster shutter speed
- ⑧ Open the aperture
- ⑨ Set slower shutter speed

Recording mode	Cursor button
P Programme AE  Macro mode	Set the Programme shift with ◀/▶ .
A Aperture-priority AE	Set the aperture value with ▲/▼ . (◀/▶ is not available.)
S Shutter-priority AE	Set the shutter speed with ◀/▶ . (▲/▼ is not available.)
M Manual Exposure	Set the aperture value with ▲/▼ and set the shutter speed with ◀/▶ .

- Refer to P33 for the Programme shift.

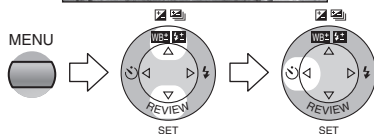
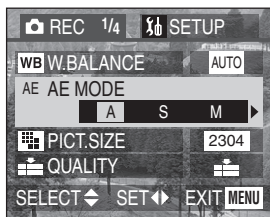
Taking Pictures with Aperture-priority AE

When you want the background to be in sharp focus, set the aperture value to a higher number. The higher the aperture value, the smaller the aperture opening will be. For a soft focus background, set the aperture number to a lower number which corresponds to a larger aperture opening.

Preparation

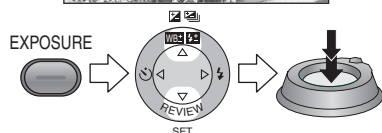
- Set the mode dial to [A/S/M]. (P28)

1 Select [AE MODE] and set it to [A].



- Close the menu by pressing the [MENU] button after finishing the setting.

2 Set the aperture value and take the picture.



◇ Suggestions/Tips ◇

- Refer to P54 for the available range of the aperture value and the shutter speed.
- The focus range is 5 cm – ∞ (Wide) and 2 m – ∞ (Tele).
- If the subject is too bright, set to larger aperture value, if too dim, set to smaller aperture value.
- The brightness of the screen may differ from that of the actual pictures. Check it using review function or setting to the playback mode.
- The ISO sensitivity cannot be set to [AUTO].
- When the exposure is not adequate, of the aperture and the shutter speed values on the screen turn red.

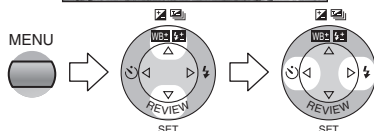
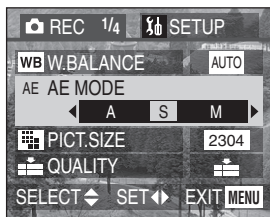
Taking Pictures with Shutter-priority AE

When you want to take a sharp picture of a fast moving subject, set to faster shutter speed. When you want to create a trail effect, set to slower shutter speed.

Preparation

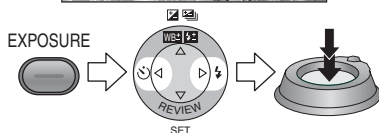
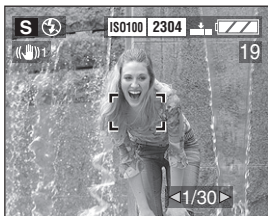
- Set the mode dial to [A/S/M]. (P28)

1 Select [AE MODE] and set it to [S].



- Close the menu by pressing the [MENU] button after finishing the setting.

2 Set the shutter speed and take the picture.



◇ Suggestions/Tips ◇

- Refer to P54 for the available range of the aperture value and the shutter speed.
- The focus range is 5 cm – ∞ (Wide) and 2 m – ∞ (Tele).
- The brightness of the screen may differ from that of the actual pictures. Check it using review function or setting to the playback mode.
- You cannot set the following items in Shutter-priority AE.
 - Slow sync./Red-eye reduction [fS] (P36)
 - [AUTO] in ISO sensitivity (P72)
- When the exposure is not adequate, the aperture value and the shutter speed on the screen turn red.
- When the shutter speed is slow, we recommend using a tripod.

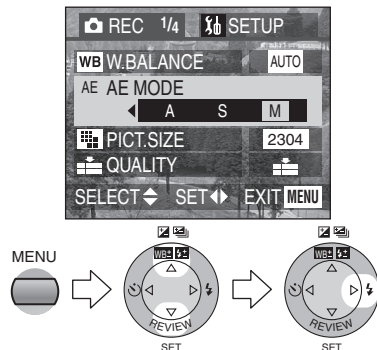
Taking Pictures with Manual Exposure

Decide the exposure by setting the aperture value and the shutter speed manually.

Preparation

- Set the mode dial to A/S/M mode [A/S/M]. (P28)

1 Select [AE MODE] and set it to [M].



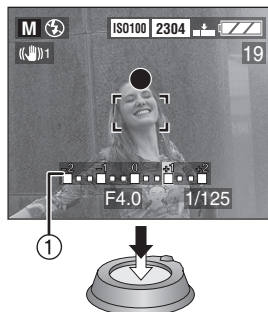
- Close the menu by pressing the [MENU] button after finishing the setting.

2 Set the aperture value and the shutter speed.



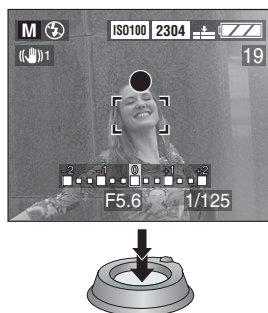
- ▲/▼: Aperture value
- ◀/▶: Shutter speed

3 Press the shutter button halfway.






- Indication for the condition of exposure ① (manual exposure assistance) appears for about 10 seconds.
- When the exposure is not adequate, set the aperture value and the shutter speed again.

4 Take the picture.




Manual Exposure Assistance

	The exposure is adequate.
	Set to faster shutter speed or larger aperture value.
	Set to slower shutter speed or smaller aperture value.

- The manual exposure assistance is an approximation. We recommend taking pictures and then checking them using the review function.

◇ Suggestions/Tips ◇

- Refer to P54 for the available range of the aperture value and the shutter speed.
- The focus range is 5 cm – ∞ (Wide) and 2 m – ∞ (Tele).
- If the exposure is not adequate, the aperture value and the shutter speed turn red when pressing the shutter button halfway.
- You cannot set the following items in manual exposure.
 - Slow sync./Red-eye reduction
 (P36)
 - [AUTO] in ISO sensitivity (P72)
 - Exposure compensation (P39)

Aperture Value and Shutter Speed

■ Aperture-priority AE

Available Aperture value (Per 1/3 EV)			Shutter Speed (Sec.)
F8.0			1 – 1/2000
F7.3	F6.5	F5.6	1 – 1/1600
F5.2	F4.6	F4.0	1 – 1/1300
F3.7	F3.3	F2.8	1 – 1/1000

■ Shutter-priority AE

Available Shutter Speed (Sec.) (Per 1/3 EV)				Aperture value
8	6	5	4	(F2.8) ^{*1} – F8.0
3.2	2.5	2	1.6	
1.3	1	1/1.3	1/1.6	
1/2	1/2.5	1/3.2	1/4	
1/5	1/6	1/8	1/10	F2.8 – F8.0
1/13	1/15	1/20	1/25	
1/30	1/40	1/50	1/60	
1/80	1/100	1/125	1/160	
1/200	1/250	1/320	1/400	
1/500	1/640	1/800	1/1000	
1/1300				F4.0 – F8.0
1/1600				F5.6 – F8.0
1/2000				F8.0

^{*1} The smaller aperture value is limited depending on the shutter speed or ISO sensitivity.

e.g. When setting the shutter speed to 8 seconds and ISO100, only F8.0 is set.

■ Manual exposure

Available Aperture value (Per 1/3 EV)	Available Shutter Speed (Sec.) (Per 1/3 EV)
F2.8 – F8.0	8 – 1/1000
F4.0 – F8.0	8 – 1/1300
F5.6 – F8.0	8 – 1/1600
F8.0	8 – 1/2000

Taking Pictures using Macro Mode

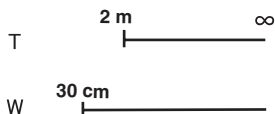
This mode allows you to take pictures closely focusing on the subject. (E.g. When taking pictures of flowers.)

You can take pictures with the lens at a distance of 5 cm (Wide) from the subject.

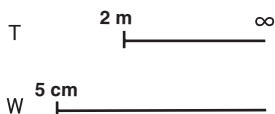
Preparation

- Set the mode dial to [🌸]. (P28)

• Normal

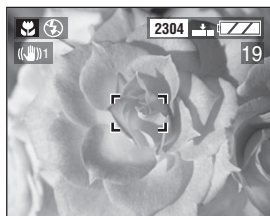


• Macro mode [🌸]



◇ Suggestions/Tips ◇

- In Macro mode, we recommend using a tripod.
- When the camera lens is at a distance over the available range from the subject, the subject may not be focused even if the focus indication lights.
- You can also set the Programme shift. (P33)
- The available flash range is about 40 cm – 4 m. (When setting to ISO AUTO)



Taking Pictures using Portrait Mode

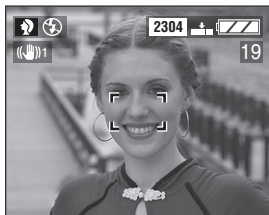
This mode allows you to make the subject stand out from the unfocused background and adjust the exposure and the hue.

Preparation

- Set the mode dial to [P]. (P28)

■ Technique for Portrait mode

To make this mode more effective, rotate the zoom lever to Tele as far as possible to be close to the subject, and then select the background which is far from the camera.



◇ Suggestions/Tips ◇

- This mode is suitable for outdoors in the daytime.
- [AUTO] setting in white balance works best when recording outdoors in the daytime. When using indoors, the hue may change.
- You can change the white balance setting. (P65)
- When you want to change the exposure or the hue, compensate the exposure or adjust the picture quality.

Taking Pictures using Sports Mode

This mode allows you to take pictures of a fast moving subject. (E.g. When taking pictures of outdoor sports.)

Preparation

- Set the mode dial to [S]. (P28)

■ Technique for Sports mode

To record actions of the subject as if it were still, the shutter speed becomes faster than usual. This mode is more effective when taking pictures on a clear day.



◇ Suggestions/Tips ◇

- This mode is suitable for outdoors in the daytime, keeping 5 m or more away from the subject.
- [AUTO] setting in white balance works best when recording outdoors in the daytime. When using indoors, the hue may change.
- You can change the white balance setting. (P65)

Taking Pictures using Panning Mode

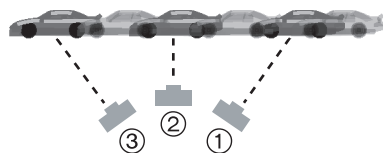
The Panning Mode allows you to follow the motion of a moving subject. This special effect allows the subject to be in sharp focus while the background will show some motion blur.

Preparation

- Set the mode dial to [P]. (P28)
- Set to burst mode. (P42)
- Prefocus on the subject. (P64)

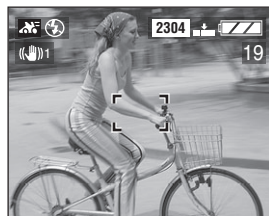
■ Technique for Panning mode

To achieve good pictures in panning mode, pick a horizontal plane—and then pan as you fire shots.



- ① Move the camera smoothly while tracking a subject in motion.
- ② Press the shutter button while moving the camera.
- ③ Keep moving the camera continuously.

- Be careful of the following:
 - Use the Viewfinder. (P25)
 - Select the subject with quick motion.
 - Be as close to the subject as possible.
 - Prefocus to the point where the subject will come. (P64)
 - Use this mode with burst mode (P42). Select the best picture from the pictures taken.



◇ **Suggestions/Tips** ◇

- In panning mode, the shutter speed becomes slower than usual to achieve the panning effect. As a result, jitter can easily occur.
- Panning function does not work well in the following situations.
 - Very bright scenes such as daytime in summer. We recommend using an ND filter (DMW-LND72, optional). (P115)
 - When the shutter speed is faster than 1/100th.
 - When the subject moves slowly and the tracking speed is too slow. (The background cannot be recorded dynamically.)
- [AUTO] setting in white balance works best when recording outdoors in the daytime. When using indoors, the hue may change.
- You can change the white balance setting. (P65)

Taking Pictures using Night Portrait Mode

Night Portrait Mode allows you to take pictures against a nighttime landscape. By using the flash and a slow shutter speed, the picture will show the subject and the background brighter than they appear in real life.

Preparation

- Set the mode dial to [👤]. (P28)



■ Technique for Night portrait mode

- Open the flash. (P36)
- Since the shutter speed becomes slow (max. about 1 sec.), we recommend using a tripod.
- Keep the subject still for about 1 second after taking a picture.
- The subject should be positioned within the available flash range 40 cm–2 m. (Fixed to ISO100)
- We recommend rotating the zoom lever to Wide.
- The focus range is 1 m – ∞.

■ When taking picture of only a landscape at night

- Without the flash, the shutter speed will be about 8 seconds at maximum. The shutter speed is suitable for taking pictures of nightscapes only.
- The focus range is 5 m – ∞.

◇ Suggestions/Tips ◇

- Be sure to close the flash when you do not use the flash.
- Flash setting is fixed to Slow sync./ Red-eye reduction [🔧👁️].
- You can change the white balance setting. (P65)
- The shutter may be kept closed (max. about 8 seconds) after taking a picture with slow shutter speed, but it is not a malfunction.
- When you take pictures in dark places, noises may become visible. To avoid noises, we recommend setting each item on [PICT.ADJ.] to [LOW]. (P77)

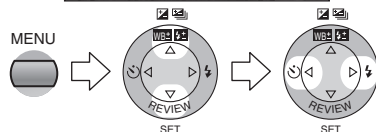
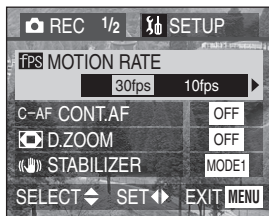
Recording Motion Images

You can record motion images with audio.

Preparation

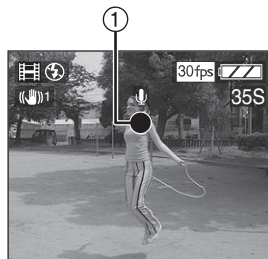
- Set the mode dial to [M]. (P28)

1 Select [MOTION RATE].



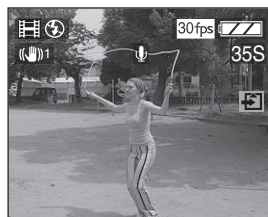
- [30fps]:**
The motion of recorded image is smooth, but the file size is large.
- [10fps]:**
The file size is smaller so you can record motion images for a longer time.
- fps (frame per second):** This means the number of frames used in 1 second.
- Close the menu by pressing the [MENU] button after finishing the setting.

2 Press the shutter button halfway.

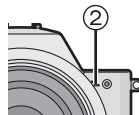


- When the subject is focused, the focus indication ① lights.

3 Press the shutter button fully to start the recording.



- The audio recording starts simultaneously from the built-in microphone ② of the camera.
- By pressing the shutter button fully again, the recording stops.
- If the memory of the card becomes full during recording, the recording stops automatically.



■ Available recording time

SD Memory Card Capacity	Motion rate	
	10fps	30fps
16 MB	75 seconds	25 seconds
32 MB	160 seconds	55 seconds
64 MB	350 seconds	120 seconds
128 MB	720 seconds	240 seconds
256 MB	1450 seconds	480 seconds
512 MB	2950 seconds	1020 seconds

- The remaining recording time appears on the screen.
(It is an approximation.)
- The recordable time is an approximation.

◇ **Suggestions/Tips** ◇

- The picture size is fixed to 320×240 pixels.
- The motion images cannot be recorded without audio.
- If using the MultiMediaCard, after recording motion images, the card access indication may appear for a while, but this is not a malfunction.
- After recording starts, the auto focus/zoom/aperture values are fixed (with the first frame).
- Recording could suddenly stop depending on the type of the card when recording motion images.
- When the motion images recorded with this camera is played back on other equipment, the quality of pictures and sounds may be deteriorated or they may not be played back.
- The motion images recorded with setting [MOTION RATE] to [30fps] cannot be played on the camera which does not support [30fps] of motion rate.
- The review function cannot be used.
- The stabilizer function can be set to only [MODE1].

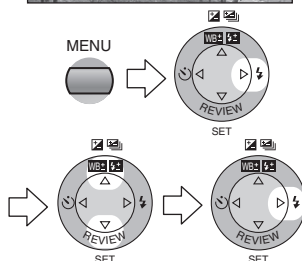
Taking Pictures with Manual Focus

Use this function when you want to fix the focus.

Preparation

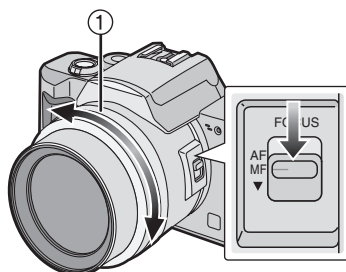
- Set the mode dial except for [P]. (P28)

- Select [MF ASSIST] from the [SETUP] menu (in the recording mode) (P24) and set it to [ON].



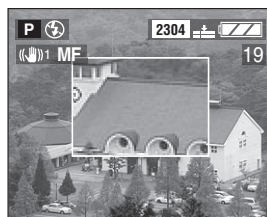
- Close the menu by pressing the [MENU] button after finishing the setting.

- Slide the focus switch to [MF] and rotate the MF ring ① to focus on the subject.



- AF: Auto focus
- MF: Manual focus
- ▼: One shot AF

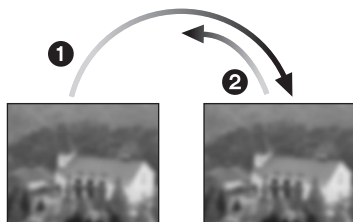
- The MF assistance appears on the centre of the screen.



- You can also set [MF ASSIST] to [OFF] on the [SETUP] menu (in the recording mode).
- When you stop rotating the MF ring, the MF assistance disappears about 2 seconds after.

■ Technique for Manual focus

The subject is focused.



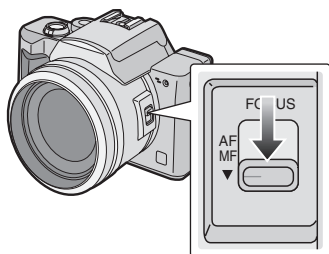
The subject is unfocused.

- ① Rotate the MF ring slowly. If the subject is focused, rotate it a little more.
- ② Finely focus on the subject while rotating the MF ring in the reverse direction.

■ One shot AF

You can focus on the subject with auto focus by sliding down the focus switch to [▼] in MF mode.

This is convenient for prefocus.



■ Prefocus

This is a technique to focus on the point to take pictures in advance when it is difficult to focus on the subject with auto focus due to its quick motion. (E.g. Panning mode [P58])

This function is suitable when the distance between the camera and the subject is certain.

◇ Suggestions/Tips ◇

- You can also record with manual focus in Motion image mode [H]. When starting the recording, the focus is fixed.
- When you focus on the subject in Wide, the focus may not be adequate in Tele. In this case, focus on the subject again.
- When you zoom in the subject after focusing in Tele, the focus may fluctuate. Focus on the subject again.
- When setting the manual focus, you cannot set the continuous AF.
- The MF assistance only appears in optical zoom range.

Setting the White Balance

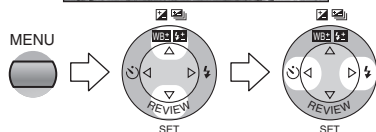
In certain situations, the colour white may appear slightly reddish or bluish. This can occur when shooting under early or late day sunlight, on a cloudy day, or under halogen lighting. By using the manual White Balance feature you can achieve a more accurate reproduction of the colour white.

Preparation

- Set the mode dial except for []/[]. (P28)

1 Select [W.BALANCE] and set the desirable mode.

- Close the menu by pressing the [MENU] button after finishing the setting.



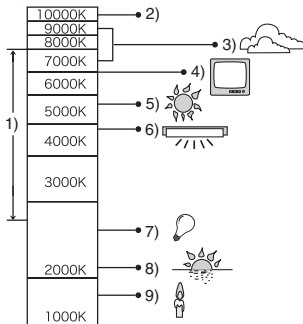
- [AUTO]:
for setting the white balance automatically (auto white balance)
- [*] (Daylight):
for recording outdoors on a bright day
- [☁] (Cloudy):
for recording under a cloudy and shady sky
- [🔦] (Halogen):
for recording under halogen lighting
- [⚡] (Flash):
for taking a picture with photo flash only
- [📷] (White set):
for manual setting (Read the following page where the manual setting is explained in detail.)

Use of auto white balance adjustment in inappropriate lighting conditions may result in reddish or bluish pictures.

Where the subject is surrounded by many light sources, auto white balance adjustment may not operate properly.

In this case, set the white balance to the mode except [AUTO] manually.

- 1 The range that is controlled by the auto white balance adjustment mode of this camera
- 2 Blue sky
- 3 Cloudy sky (Rain)
- 4 TV screen
- 5 Sunlight
- 6 White fluorescent light
- 7 Incandescent light bulb
- 8 Sunrise and sunset
- 9 Candlelight



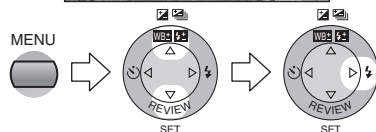
K=Kelvin Colour Temperature

Setting the White Balance manually (White set)

Preparation

- Set the mode dial except for []/[]. (P28)

- Select [W.BALANCE] and set to [].

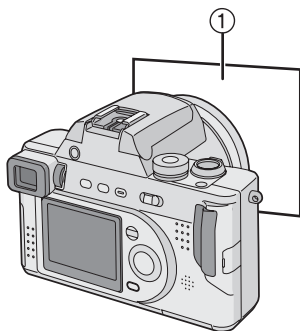


◇ Suggestions/Tips ◇

- When setting the white balance to the mode except for [AUTO], you can finely adjust the white balance. (P68)
- The setting of the white balance is applied to the other recording modes.
- In Motion image mode [], the white balance is fixed to [AUTO].
- When taking a picture with the flash, the white balance will be automatically adjusted [except for [*] (Daylight) and [] (Flash)], but the white balance may not be properly adjusted when the photo flash is insufficient.

- (Only when setting the white balance again) Press ►.

- Aim the camera at a sheet of white paper ① or similar object so that it completely fills the frame to white on the screen and press the shutter button fully.



- Close the menu by pressing the [MENU] button after finishing the setting.

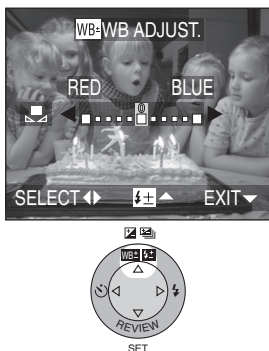
Finely Adjusting the White Balance

If you cannot acquire the desirable hue with white balance because of too many different light sources, etc., adjust the fine white balance as follows.

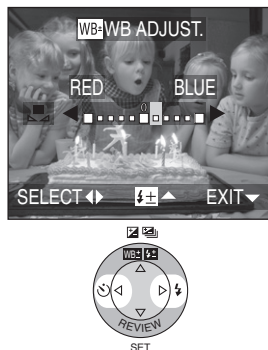
Preparation

- Set the mode dial except for []/[]. (P28)
- Set the white balance to [*]/[]/[]/[]/[]. (P65)

1 Press ▲ until [WB] WB ADJUST. appears.



2 Adjust the white balance.



- ► [BLUE]: Press when the hue is reddish.
- ◀ [RED]: Press when the hue is bluish.
- Close the function by pressing ▼ after finishing the adjustment.

◇ Suggestions/Tips ◇

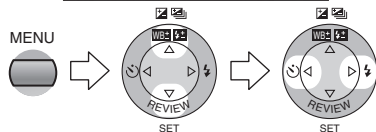
- The white balance icon turns red or blue.
- You can set the value independently for each of the modes in white balance.
- When you set the white balance using the White set [], the adjustment level is set to "0".
- The adjusted picture will be close, though may not be identical to the actual picture.

Changing the Picture Size

Preparation

- Set the mode dial except for []/[]. (P28)

1 Select [PICT.SIZE] and set the picture size.



- [2304]: 2304×1728 pixels
- [1600]: 1600×1200 pixels
- [1280]: 1280×960 pixels
- [640]: 640×480 pixels
- [HDTV]: 1920×1080 pixels
- Close the menu by pressing the [MENU] button after finishing the setting.

◇ Suggestions/Tips ◇

- In Motion image mode [], the picture size is fixed to 320×240 pixels.
- The smaller the picture size (640×480) you select, the more pictures you can store on the card. In addition, a small file size allows you to attach the picture to an e-mail or post it on a web site more easily.
- If you select a larger picture size (2304×1728), the printed picture will be clearer, especially with larger sized prints.
- If you playback pictures recorded using [HDTV] mode on a High-Definition TV, (HDTV has 16:9 aspect) the picture quality will be higher. An SD Memory Card can be played on TVs with an SD Memory Card slot.

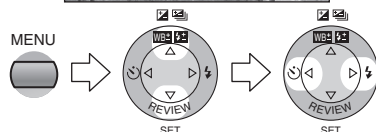
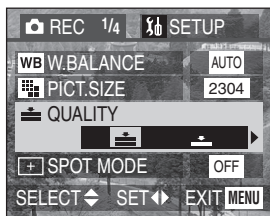
Changing the Quality

“Quality” refers to the amount each image is compressed. Lower compression results in superior picture quality. Higher compression allows you to store more images on your SD Memory card.

Preparation

- Set the mode dial except for []/[]. (P28)

1 Select [QUALITY] and set the quality.



- : Fine (Low compression)
It gives priority to picture quality to record high quality pictures.
- : Standard (High compression)
It gives priority to the number of recordable pictures and records standard quality pictures.
- Close the menu by pressing the [MENU] button after finishing the setting.

◇ Suggestions/Tips ◇

- It may happen that pictures appear like a mosaic depending on the subject or the recording condition.
- The number of recordable pictures depends on the subject.
- The number of remaining frames may not correspond with recorded frames.
- Refer to P124 for the number of recordable pictures.

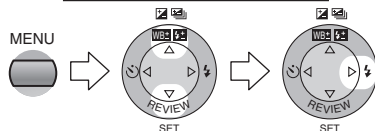
Taking Pictures using Spot Mode

When using Spot mode the size of the area used to calculate the focus and exposure is decreased. It is useful when you may be shooting through a group of people and want to designate where in the group the camera will calculate the exposure.

Preparation

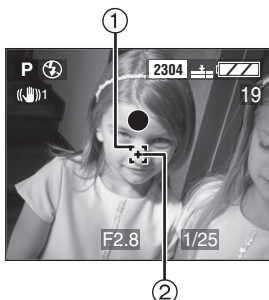
- Set the mode dial except for []/[]. (P28)

1 Select [SPOT MODE] and set it to [ON].



- Close the menu by pressing the [MENU] button after finishing the setting.

2 Aim the spot AF area to the subject and press the shutter button halfway for the AF/AE lock.



- The spot AF area [] ① and spot metering target + ② appear.

3 Move the camera to compose the picture fixing the focus on the subject and take the picture.



- You can set suitable AF/AE in more limited areas.

◇ Suggestions/Tips ◇

- When the subject is dark, it may not be focused properly.
- Background may become dark or whitish depending on the subject because the exposure is set appropriately in the spot AF area.

Setting ISO Sensitivity

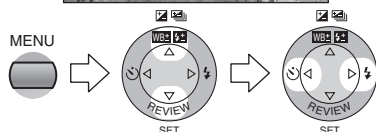
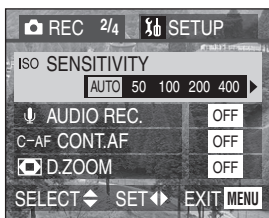
The ISO setting sets the cameras sensitivity to light. The ISO setting can be increased when you need to take pictures in places where a flash may not be allowed. The overall picture quality will decrease slightly as the ISO setting is increased.

ISO sensitivity	50 ←————→ 400	
Use in bright places (E.g. outdoors)	Suitable	Not suitable
Use in dark places	Not suitable	Suitable
Shutter speed	Slow	Fast
Noises	Less	Increase

Preparation

- Set the mode dial except for [P]. (P28)

1 Select [SENSITIVITY] and set the ISO sensitivity.



- When setting to [AUTO], the ISO sensitivity is automatically adjusted from ISO50 to ISO200 according to the brightness. (From ISO50 to ISO400 when using the flash)
- Close the menu by pressing the [MENU] button after finishing the setting.

◇ Suggestions/Tips ◇

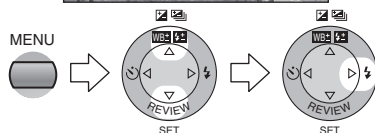
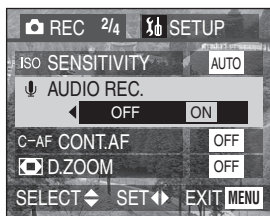
- In Motion image mode [H], ISO sensitivity is fixed to [AUTO].
- To avoid noises, we recommend decreasing the ISO sensitivity or setting each item on [PICT.ADJ.] to [LOW]. (P77)
- In A/S/M mode [A/S/M], the ISO sensitivity cannot be set to [AUTO].

Taking Pictures with Audio

Preparation

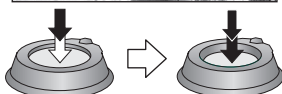
- Set the mode dial except for []/[]. (P28)

1 Select [AUDIO REC.] and set it to [ON].



- Close the menu by pressing the [MENU] button after finishing the setting.

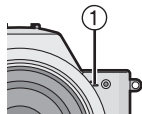
2 Take the picture.



- 5 seconds after, the audio recording is stopped automatically.
- If you press the [MENU] button during the audio recording, it will be cancelled. The audio cannot be recorded.

◇ Suggestions/Tips ◇

- It is not necessary to keep pressing the shutter button.
- Audio is recorded from the built-in microphone ① of the camera.
- When setting to auto bracket/burst mode, it is not possible to take pictures with audio.
- When audio is recorded with each picture the total number of pictures that can be stored on each card will be slightly decreased.



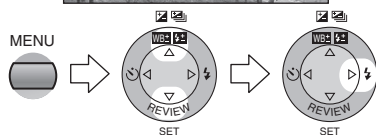
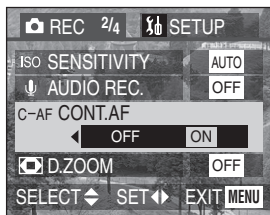
Using the Continuous AF

This function allows you to reduce the time required for focusing when pressing the shutter button halfway.

Preparation

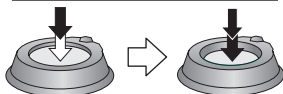
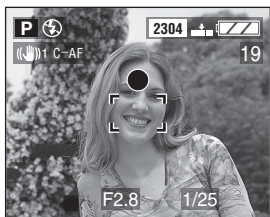
- Set the mode dial except for [P]. (P28)

1 Select [CONT.AF] and set it to [ON].



- Close the menu by pressing the [MENU] button after finishing the setting.

2 Take the picture.



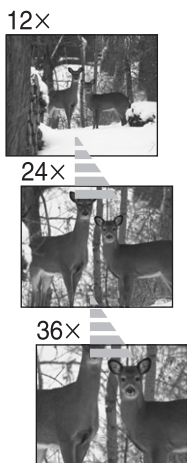
◇ Suggestions/Tips ◇

- When setting the manual focus, you cannot use the continuous AF.
- The battery is depleted more quickly using continuous AF.
- It may take time to focus on the subject after rotating the zoom lever from Wide to Tele or suddenly changing the subject from distant one to nearby one.
- Press the shutter button halfway again when it is difficult to focus on the subject.
- When pressing the shutter button halfway, the motion on the screen may be paused. This is not a malfunction.

Using the Digital Zoom

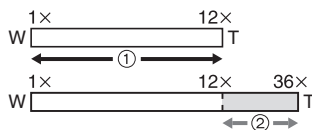
Preparation

- Set the mode dial except for [P]. (P28)



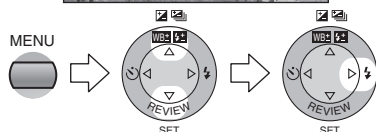
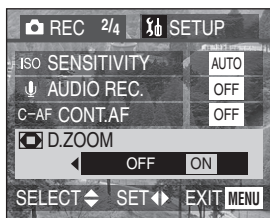
Entering the digital zoom range

When you rotate the zoom lever to the extreme Tele position the on screen zoom indication may momentarily pause. This is not a malfunction. You can enter the digital zoom range to continuously rotate the zoom lever to Tele or to release the zoom lever once and then rotate it to Tele again.



- ① Optical zoom
- ② Digital zoom

1 Select [D.ZOOM] and set it to [ON].



- Close the menu by pressing the [MENU] button after finishing the setting.
- When rotating the zoom lever with setting the [D.ZOOM] to [ON], the digital zoom indication appears. (P117)

◇ Suggestions/Tips ◇

- It is possible to further magnify a subject already magnified 12 times with the optical zoom by 3 more times with the digital zoom, thereby reaching a maximum of 36 times.
- When using the digital zoom the picture quality becomes deteriorated.
- In the digital zoom range, the stabilizer function may not be effective.
- We recommend to use a tripod in the digital zoom range.
- The indicated zoom magnification is an approximation.

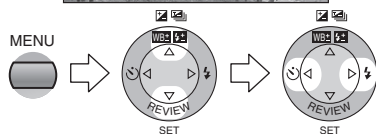
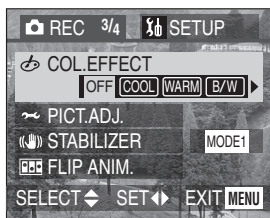
Using the Colour Effect

You can use 3 types of colour effects depending on the image of the picture.

Preparation

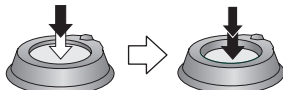
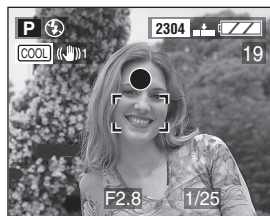
- Set the mode dial except for []/[]. (P28)

1 Select [COL.EFFECT] and set the colour.



- [COOL]: The picture becomes bluish.
- [WARM]: The picture becomes reddish.
- [B/W]: The picture becomes black and white.
- Close the menu by pressing the [MENU] button after finishing the setting.

2 Take the picture.



◇ Suggestions/Tips ◇

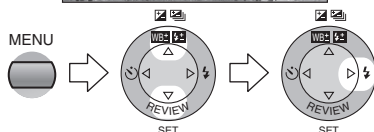
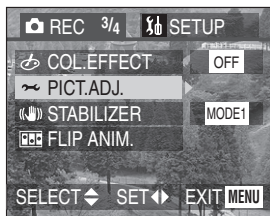
- [COOL] is effective when you want to add cold atmosphere to the picture, and [WARM] is effective when you want to express comfortable warmth in the scene.

Adjusting the Quality of the Picture (Picture Adjustment)

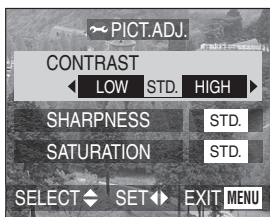
Preparation

- Set the mode dial except for []/[]. (P28)

1 Select [PICT.ADJ.].



2 Select [CONTRAST], [SHARPNESS] and [SATURATION] respectively.



• [CONTRAST]:

HIGH: Increases the difference between the brightness and the darkness in the picture.

LOW: Decreases the difference between the brightness and the darkness in the picture.

• [SHARPNESS]:

HIGH: The picture is sharply defined.

LOW: The picture is softly focused.

• [SATURATION]:

HIGH: The colours in the picture becomes vivid.

LOW: The colours in the picture become natural.

- Close the menu by pressing the [MENU] button 2 times after finishing the setting.

◇ Suggestions/Tips ◇

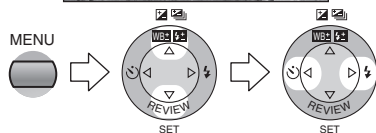
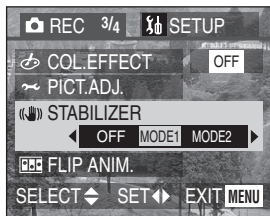
- When you take pictures in dark places, noises may become visible. To avoid noises, we recommend setting each item on [PICT.ADJ.] to [LOW].

Using the Optical Image Stabilizer

Preparation

- Set the mode dial except for [📹]. (P28)

1 Select [STABILIZER] and set it.



- **[OFF]:** OFF
When image stabilization is not desired or when using a tripod.
- **[MODE1]:** 1
The stabilizer operates continuously and can assist during photocomposition.
- **[MODE2]:** 2
The stabilizer function is in standby and activates at the moment the shutter captures the image. This mode offers a greater degree of stabilization.
- Close the menu by pressing the [MENU] button after finishing the setting.

◇ Suggestions/Tips ◇

- In [MODE2], the optical image stabilizer icon turns yellow soon after you turn the camera on to keep the stabilizer function activated.
- While the optical image stabilizer icon is displayed in yellow and if the camera receives a strong shock, the icon may be displayed in yellow for longer time than usual.
- While the optical image stabilizer icon is displayed in yellow, the stabilizer function may not work sufficiently.
- While the optical image stabilizer icon is displayed in yellow, the pictures on screen also be stabilized. (as same as in [MODE1])
- The stabilizer function may not work sufficiently in the following cases.
 - When too much jitter occurs
 - In digital zoom range
 - When taking pictures while following subjects in motion.
 - When the shutter speed is extremely slow due to nightscape or other reasons.
- Refer to P31 for information on jitter.

Creating Flip Animation

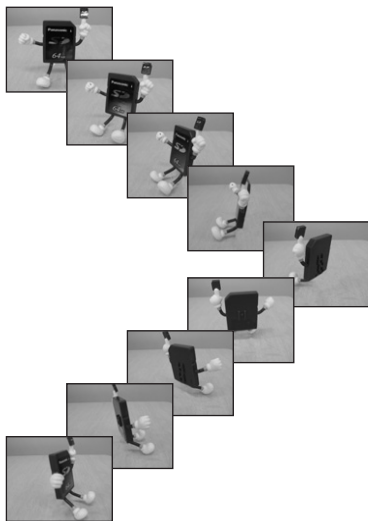
You can create motion image files by arranging pictures taken frame-by-frame.

Preparation

- Set the mode dial except for []/[]. (P28)

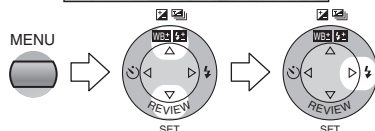
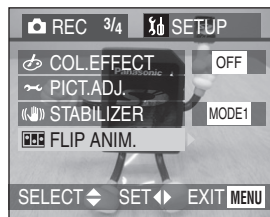
Example:

When capturing images of the subject in sequence moving it little by little and aligning the images, the subject looks as if it were moving.

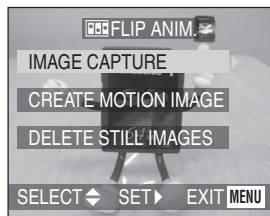


Capturing images

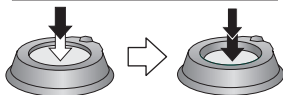
1 Select [FLIP ANIM.].



2 Select [IMAGE CAPTURE].



3 Capture images for flip animation.



- You can take up to 100 pictures.

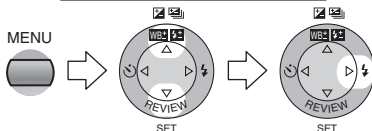
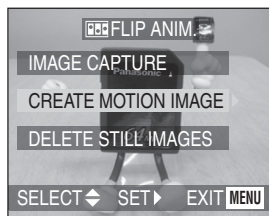
4 Check the image.



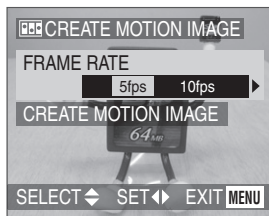
- You can check the previous or following image with ◀▶.
- Delete unnecessary images with [DELETE] button.

Creating motion images

5 Select [CREATE MOTION IMAGE].

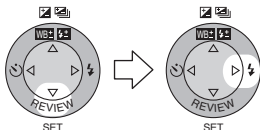
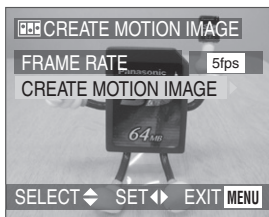


6 Select [FRAME RATE] and set the number of frames.



- [5fps]:
5 frames/sec.
- [10fps]:
10 frames/sec. (The motion images become smoother.)

7 Select [CREATE MOTION IMAGE] and create a flip animation.



- The file number appears for about 1 second after creating a flip animation.
- Including the created images, the flip animation is counted as 1 animation image.
- Close the menu by pressing the [MENU] button 3 times after finishing the setting.

■ Playing back a created flip animation

Follow the same procedure as you play back motion images. (P87)

■ Deleting all of still images used for flip animation

When selecting [DELETE STILL IMAGES] in flip animation screen, a confirmation screen appears. Select [YES] and then press ▼.

◇ **Suggestions/Tips** ◇

- Flip animations are created as motion image files. (Extension: .MOV)
- The number of pixel is 320×240.
- You cannot use pictures with audio, burst mode and auto bracket.
- The images in each frame do not appear in normal review. (P34)
- Flip animations may not be played by other equipment.
- The flip animations recorded with setting [FRAME RATE] to [5fps] cannot be played back on the camera which does not support [5fps] of motion rate.
- Audio cannot be recorded on flip animations. However, you may hear noises when playing back with other equipment without a mute function.
- The number of recordable images is an approximation.

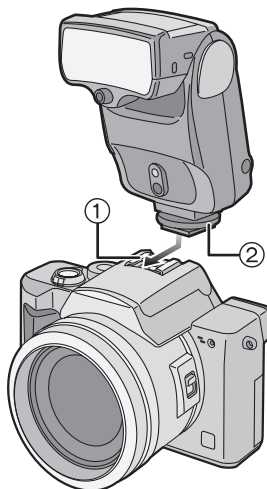
Using the External Flash

After installing the optional flash, DMW-FL28, the effective range will be increased when compared to the camera's built in flash.

Preparation

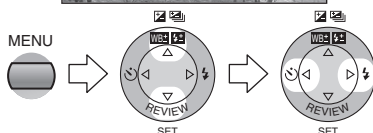
- Set the mode dial except for []/[]. (P28)

- 1 Attach the external flash to the hot shoe ① and turn the camera on.



- Tighten the lock screw ② of the external flash firmly.

- 2 Select [PRESET] or [MANUAL] and turn the external flash on.





- Close the menu by pressing the [MENU] button after finishing the setting.

Switch the external flash setting



Icon	Setting
or	External flash Forced ON
or	External flash Forced OFF

■ About PRESET/MANUAL on the external flash

- When setting to [PRESET] and attaching the external flash, the aperture value and the ISO sensitivity are respectively set to [F2.8] and [ISO100] on the camera regardless of the recording mode. Set the external flash to [AUTO] and set the same value as the settings on the camera.
- We recommend setting to [PRESET] for normal use.
- When setting to [MANUAL], you can set the aperture value, the shutter speed and the ISO sensitivity on the camera even if the external flash is attached.
- When setting to [MANUAL], set to the Aperture-priority AE or the manual exposure on the camera and then set the same aperture value and the ISO sensitivity on the external flash. (The external flash cannot control the light adequately due to the change in aperture value on Shutter-priority AE and Programme AE.)
- When attaching the external flash, the shutter speed becomes 1/60th to 1/250th in normal mode, 1 to 1/250th in Night portrait mode [].
- External flash mode is selected when attaching the external flash to the camera even if the external flash is turned off. When you are not using the external flash, detach it or set it to Forced OFF.
- When attaching the external flash, the built-in flash cannot be activated.
- When attaching the external flash, the camera becomes unstable to be put.
- Detach the external flash when carrying the camera.
- When attaching the external flash, do not hold only the external flash because it may drop off the camera.
- When using the external flash and setting the white balance to [] (Flash), finely adjust the white balance. (P68)
- If you take pictures close to the subject in Wide, the vignetting effect may appear on the bottom of the recorded picture.
- Read the operating instructions of the external flash for details.

◇ Suggestions/Tips ◇

- Some commercial external flashes have synchro terminals with high-voltage or reversed polarity. Using such external flashes may cause a malfunction or the camera may not operate normally. Be sure to use Panasonic's external flash (DMW-FL28).
- If using other external flash units, please make sure the flash is designed for use with a digital camera and the trigger voltage is based on ISO 10330 (less than 24 volts).
- The available flash range is 10 m in DMW-FL28. (When setting to ISO100)

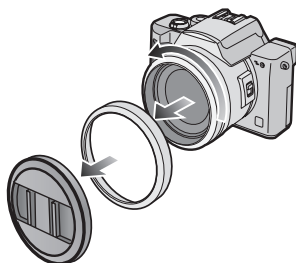
Using the Conversion Lens

The tele conversion lens (DMW-LTZ10, optional) allows you to take pictures zooming in much more (1.5 times). The wide conversion lens (DMW-LWZ10, optional) allows you to take pictures with wider range of focus than usual (0.8 times).

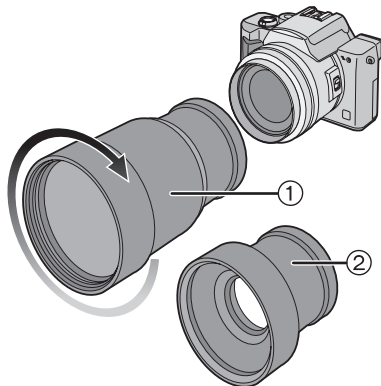
Preparation

- Set the mode dial except for [P]. (P28)
- Check that the camera is turned off and that the lens is retracted.

1 Remove the lens cap and the lens ring.

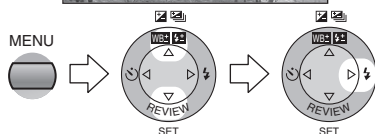
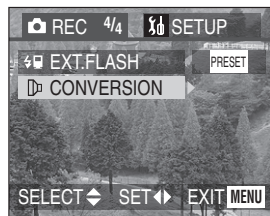


2 Attach the tele conversion lens ① or wide conversion lens ②.

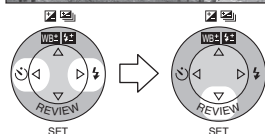
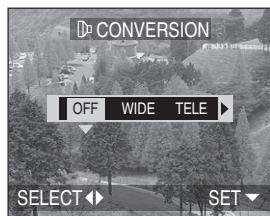


- Rotate the lens slowly and carefully.

3 Turn the camera on and select [CONVERSION].



4 Set to [WIDE] or [TELE].



- [OFF]:
When you do not attach the conversion lens.

- [WIDE]:
When you attach the wide conversion lens.
- [TELE]:
When you attach the tele conversion lens.
- Close the menu by pressing the [MENU] button after finishing the setting.

■ Recordable range when using the conversion lens

When using the tele conversion lens:

- Normal: 4.6 m – ∞
- Macro mode []:
4.6 m – ∞

When using the wide conversion lens:

- Normal: 17 cm – ∞
- Macro mode []: 1 cm – ∞

Tele conversion lens			
Indication	6×	12×	36×
Actual magnification	9×	18×	54×
35 mm film camera equivalent	315 mm	630 mm	1890 mm

Wide conversion lens		
Indication	1×	2×
Actual magnification	0.8×	1.6×
35 mm film camera equivalent	28 mm	56 mm

- When using the tele conversion lens, the available zoom range is limited to 6 times or more. Digital zoom is available.
- When using the wide conversion lens, the available zoom range is limited between 1 times and 2 times. Digital zoom is not available.

◇ Suggestions/Tips ◇

- Check if the lens cap is removed before attaching the conversion lens.
- **When using the conversion lens:**
 - The built-in flash cannot be activated.
 - **If you use a tripod, use the tripod adaptor supplied with the conversion lens, and then fix the tripod to the tripod adaptor.**
 - **If you set [CONVERSION] to [OFF], the performance of the conversion lens cannot be brought out enough.**
- **When using the tele conversion lens:**
 - **We recommend using a tripod.**
 - The stabilizer function may not work sufficiently.
 - The focus indication may light due to the jitter even if the subject is not focused.
 - The time required for focusing may become longer than usual.
- Read the operating instructions of the conversion lens for details.

Playing Back Pictures with Audio

Preparation

- Set the mode dial to [▶]. (P28)

1 Select the picture with audio icon [▶].



◇ Suggestions/Tips ◇

- The picture with audio cannot be resized (P99) or trimmed (P101).

2 Play back the audio.



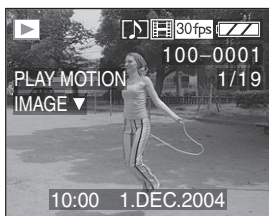
- You can hear audio from the speaker.
- To adjust the sound volume, refer to P24.

Playing Back Motion Images

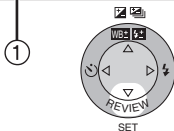
Preparation

- Set the mode dial to [REVIEW]. (P28)

1 Select the picture with the motion image icon [MOTION].



2 Play back the motion images.



- Motion image playback stops and the normal playback is restored by pressing [MOTION].
- The icon ① is corresponding to the [MOTION] button.

Fast forwarding/Fast rewinding

During motion image playback, continue pressing [MOTION].

[MOTION] : Fast forward

[MOTION] : Fast rewind

- When releasing the button, it turns to normal motion image playback.

To pause

Press [MOTION] during motion image playback.

- Press [MOTION] again to cancel pause.

- To adjust the sound volume, refer to P24.

Suggestions/Tips

- You cannot use the zoom function while playing back or pausing motion images.
- The file format that can be played back with this camera is QuickTime Motion JPEG.
- Some QuickTime Motion JPEG files recorded by a PC or other equipment may not be played back with this camera.
- When playing back motion images that have been recorded with other equipment, the quality of images may be deteriorated or the images may not be able to be played back.
- When using a high capacity card, it is possible that fast rewinding may be slower than usual.

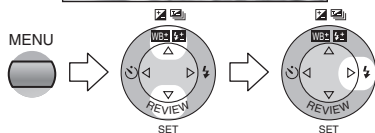
Rotating the Picture

You can rotate the recorded pictures in increments of 90°. This is a convenient function to play back pictures on TV.

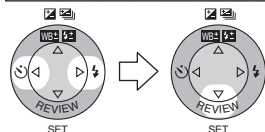
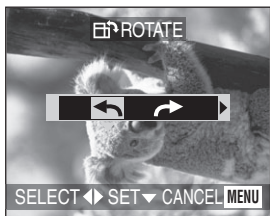
Preparation

- Set the mode dial to [▶]. (P28)

1 Select [ROTATE].



2 Select the direction to rotate the picture.

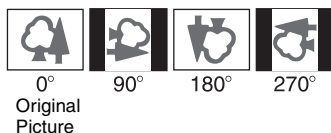


- [←]: The picture rotates counter-clockwise in increments of 90°.
- [→]: The picture rotates clockwise in increments of 90°.

- Close the menu by pressing the [MENU] button after finishing the setting.

Example

When rotating clockwise (→)



◇ Suggestions/Tips ◇

- Still pictures can only be rotated in normal playback. When playing back rotated pictures in zoom playback or multi playback, pictures appear in original angle.
- Rotated pictures appear on a PC only when an OS or a software compatible with Exif is installed in the PC.
- Exif is the file format for still pictures, to which can be added recording information and other, established by JEITA [Japan Electronics and Information Technology Industries Association].

Setting the Picture to be Printed and the Number of Prints (DPOF Print Setting)

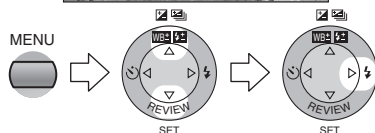
DPOF (Digital Print Order Format) is a system that allows the user to select which pictures are to be printed on compatible photo printers. DPOF also allows the user to set how many copies of each picture will be printed. Many commercial photo printing services now use DPOF.

Preparation

- Set the mode dial to [P]. (P28)

Single setting/cancel

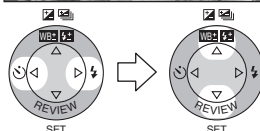
1 Select [DPOF PRINT].



2 Select [SINGLE].



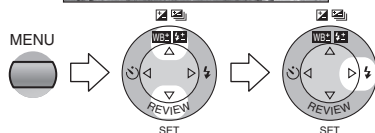
3 Select the picture and set the number of prints.



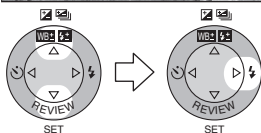
- The number of prints can be set from 0 to 999.
- The number of prints icon [D1] appears.
- When the number of prints is set to "0", DPOF print setting is cancelled.
- Close the menu by pressing the [MENU] button 2 times after finishing the setting.

Multi setting/cancel

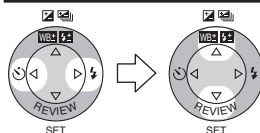
1 Select [DPOF PRINT].



2 Select [MULTI].



3 Select the pictures and set the number of prints.



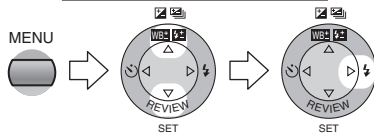
- The number of prints can be set from 0 to 999.
- The number of prints icon [51] appears.
- Repeat step 3.
- When the number of prints is set to "0", DPOF print setting is cancelled.
- Close the menu by pressing the [MENU] button 2 times after finishing the setting.

■ To cancel all settings

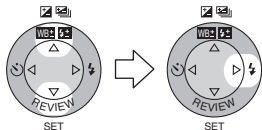
1 Select [DPOF PRINT].



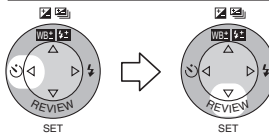
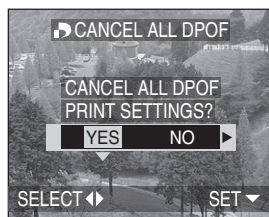
MENU



2 Select [CANCEL].



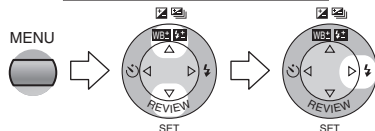
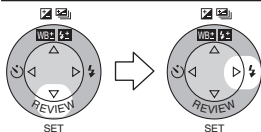
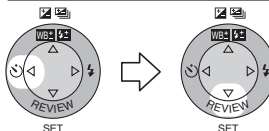
3 Select [YES] to cancel all settings.



- Close the menu by pressing the [MENU] button after canceling the setting.

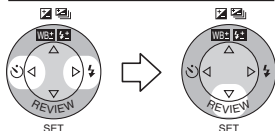
Index setting/cancel**1 Select [DPOF PRINT].**

MENU

**2 Select [INDEX].****3 Select [YES] to index setting.**

- Close the menu by pressing the [MENU] button after finishing the setting.

■ When the index is already set



- Close the menu by pressing the [MENU] button after finishing the setting.

■ To print the date

You can set/cancel the printing with the recorded date each press of the [DISPLAY] button when setting the number of prints.



- The date print icon [DATE] appears.
- When you ask photo studios for printing, be sure to order the printing of the date. For further information, ask a photo studio. Depending on the studio, it may not be printed.

◇ Suggestions/Tips ◇

- DPOF print setting is a convenient function when you print pictures with printers supporting DPOF printing.
- DPOF is the abbreviation for Digital Print Order Format. This feature allows you to designate which pictures will be printed.
- The setting of DPOF print will not be applied to the DPOF setting of Slide Show.
- If the file is not based on the DCF standard, the DPOF print setting cannot be set. DCF is an abbreviation of [Design rule for Camera File system], stipulated by JEITA [Japan Electronics and Information Technology Industries Association].
- When setting the DPOF print, this camera will overwrite any previous DPOF print settings made by other equipment.

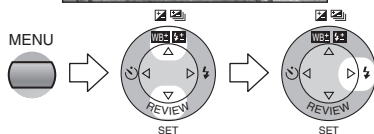
Preventing Accidental Erasure of the Picture

Preparation

- Set the mode dial to [P]. (P28)

Single setting/cancel

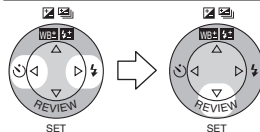
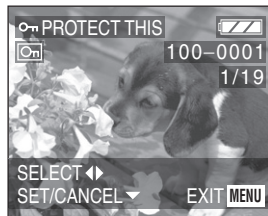
1 Select [PROTECT].



2 Select [SINGLE].



3 Select the picture and set/cancel the protection.



- [SET]:
The protect icon [On] appears.
- [CANCEL]:
The protect icon [On] disappears.
- Close the menu by pressing the [MENU] button 2 times after finishing the setting.

■ Multi setting/To cancel all settings

Perform the same operation as in [Setting the Picture to be Printed and the Number of Prints (DPOF Print Setting)]. (P89–91)

◇ **Suggestions/Tips** ◇

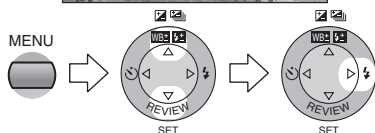
- While this feature protects the pictures from accidental erasure, formatting the card will permanently delete all data. (P103)
- If you want to delete protected pictures, cancel the protect setting first.
- The protect setting may not be effective in other equipment.
- Sliding the SD Memory Card Write-Protect switch to [LOCK] prevents the picture from deletion even if the protection is not set.
- The audio dubbing cannot be used with protected pictures. (P98)

Playing Back with Slide Show

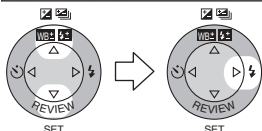
Preparation

- Set the mode dial to [▶]. (P28)

1 Select [SLIDE SHOW].



2 Select the type of pictures to play back.



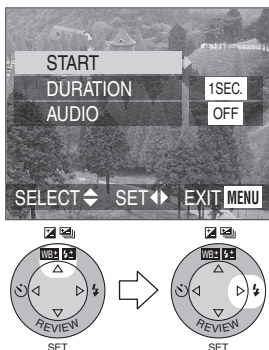
- [ALL]:
for playing back all pictures
- [DPOF]:
for playing back the pictures
DPOF Slide Show is set

3 Select the following items.



- [DURATION]:
It can be set among 1, 2, 3 and 5 seconds.
- [AUDIO]:
By setting it to [ON], the audio of the pictures with audio can be played back during Slide Show.
- [DPOF SET] (Only when setting to [DPOF]):
You can select the pictures you want to set to the Slide Show.
- [CANCEL ALL] (Only when setting to [DPOF]):
You can cancel the DPOF Slide Show setting.

4 Select [START].



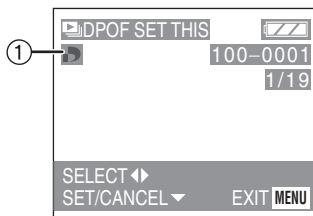
5 By pressing the [MENU] button, the Slide Show stops.

SD Slide Show

If setting the SD Slide Show with the [SD Viewer for DSC] which is in the supplied CD-ROM, when playing back, the confirmation screen appears. Select [YES] and press \blacktriangledown to start the SD Slide Show. Select [NO] and press \blacktriangledown to start normal playback.

◇ Suggestions/Tips ◇

- When setting the DPOF Slide Show, DPOF icon ① appears on the picture in green.
- When setting the DPOF Slide Show to the picture with DPOF printing, both of DPOF icon ① and the number of prints appear on the picture in green.
- When only the DPOF printing is set on the picture, the DPOF icon ① and the number of prints appear in white.



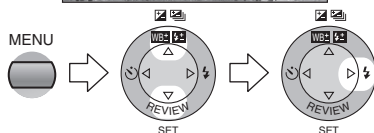
- In motion image playback, Slide Show is not available.
- The DPOF setting of Slide Show will not be applied to the DPOF printing.
- DPOF Slide Show cannot be performed without the DPOF setting of Slide Show.
- DPOF setting with the [SD Viewer for DSC] in the supplied CD-ROM is only for printing. Please set DPOF Slide Show with this camera to play back pictures in DPOF Slide Show.
- When setting the DPOF Slide Show, this camera will overwrite any previous DPOF settings made by other equipment.

Adding Audio to Recorded Pictures (Audio Dubbing)

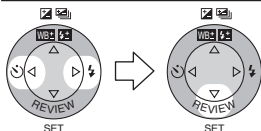
Preparation

- Set the mode dial to [REVIEW]. (P28)

1 Select [AUDIO DUB.].



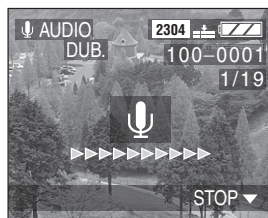
2 Select the picture and start audio recording.



- When audio has already been recorded, the confirmation screen appears. Press ◀ to select [YES], and press ▼ to start audio recording. (The original audio is overwritten.)

- The audio dubbing cannot be used with motion images or protected pictures.

3 Stop audio recording.



- Even if you do not press ▼, after about 10 seconds the audio recording stops automatically.
- Close the menu by pressing the [MENU] button 2 times after finishing the setting.

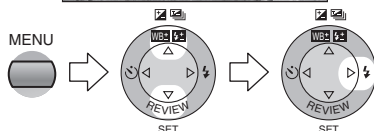
Resizing the Pictures

This function is useful if you want to reduce the file size of the picture, in those cases when it needs to be attached to an E-mail or uploaded it to a web site.

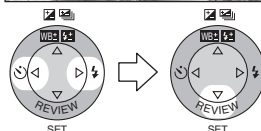
Preparation

- Set the mode dial to [REVIEW]. (P28)

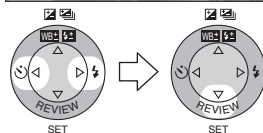
1 Select [RESIZE].



3 Select the size and set it.

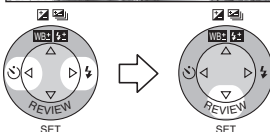


2 Select the picture and set it.



- [1600]: 1600×1200 pixels
- [1280]: 1280×960 pixels
- [640]: 640×480 pixels

4 Select [YES] or [NO] and set it.



- When you select [YES], the picture is overwritten.
- When resized pictures are overwritten, they cannot be restored.
- Close the menu by pressing the [MENU] button 2 times after finishing the resizing.

◇ **Suggestions/Tips** ◇

- The following pictures cannot be resized.
 - Pictures not over 640×480 pixels
 - Pictures recorded with setting the picture size to [HDTV]
 - Motion images
 - Flip animation
 - Pictures with audio
 - Rotated pictures (You can resize them if you turn them back.)
- It may not be possible to resize the pictures recorded with other equipment.

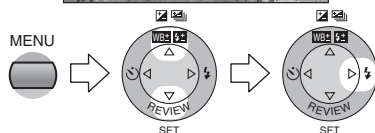
Trimming the Pictures

Preparation

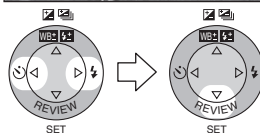
- Set the mode dial to [REVIEW]. (P28)



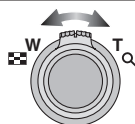
1 Select [TRIMMING].



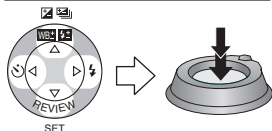
2 Select the picture to trim.



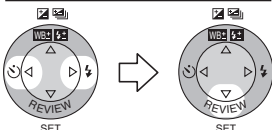
3 Enlarge or decrease the picture.



4 Shift the picture and press the shutter button fully to set.



5 Select [YES] or [NO] and set it.



◇ Suggestions/Tips ◇

- The following pictures cannot be trimmed.
 - Pictures equal to or smaller than 640×480 pixels
 - Pictures recorded with setting the picture size to [HDTV]
 - Motion images
 - Flip animation
 - Pictures with audio
 - Rotated pictures (You can trim them if you rotate them back.)
- It may not be possible to trim pictures recorded with other equipment.
- The picture size of the trimmed pictures may become smaller than that of the original one depending on the cut size.
- The picture quality of the trimmed picture may be deteriorated.

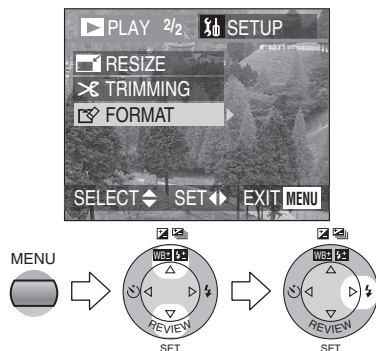
- When you select [YES], the picture is overwritten.
- When trimmed pictures are overwritten, they cannot be restored.
- Close the menu by pressing the [MENU] button 2 times after finishing the trimming.

Formatting the Card

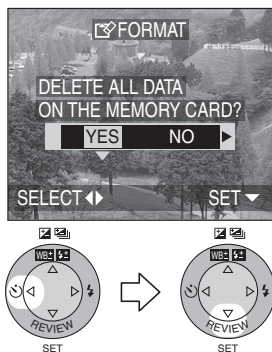
Preparation

- Set the mode dial to [▶]. (P28)

1 Select [FORMAT].



2 Select [YES] to format.



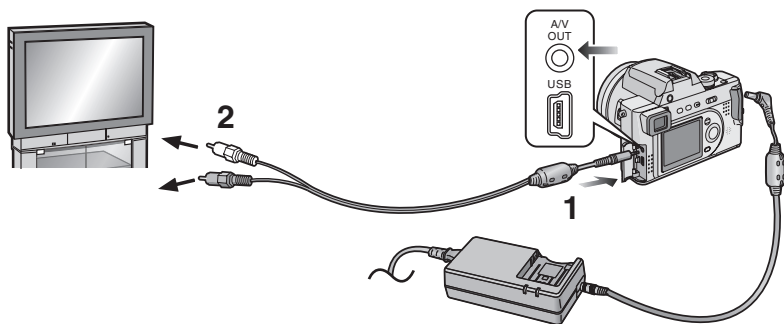
◇ Suggestions/Tips ◇

- Usually, it is not necessary to format the card (initializing). Format the card when the message [MEMORY CARD ERROR] appears.
- If the card has been formatted by a PC or other equipment, format the card on the camera again.
- After formatting, recorded pictures and any other data cannot be recovered.
- If the card is formatted all images and data will be permanently erased. They cannot be reclaimed. If any important pictures are on the card, please copy them to your PC before proceeding.**
- During formatting, do not turn the camera off.
- When the remaining battery power (P11) is low, use the AC adaptor.
- If the card is protected, you cannot format the card.
- If the card cannot be formatted, consult your nearest servicer.

Playing Back Pictures with a TV Screen

■ Playing back pictures with A/V cable (supplied)

- Turn the camera and the TV off.



1 Connect the A/V cable to the [A/V OUT] socket of the camera.

2 Connect the A/V cable to the video input and the audio input sockets of the TV.

- Yellow: to the video input socket
- White: to the audio input socket

3 Turn the TV on and select external input.

4 Turn the camera on and then set the mode dial to playback mode [▶].

■ Viewing pictures in other countries

When setting [VIDEO OUT] on the menu, you can view images on the TV in other countries (regions) which use the NTSC or PAL system.

■ Playback pictures on TV with SD Memory Card slot

An SD Memory Card can be played on TVs with an SD Memory Card slot. If you playback pictures recorded using [HDTV] mode on a High-Definition TV, (HDTV has 16:9 aspect) the picture quality will be higher.

◇ Suggestions/Tips ◇

- When connecting to a TV, we recommend using the AC adaptor as the power source.
- Use the supplied A/V cable only.
- Only when the mode dial is set to playback mode [▶], the picture is displayed on the TV.
- Read the TV operating instructions too.

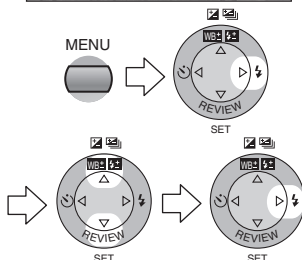
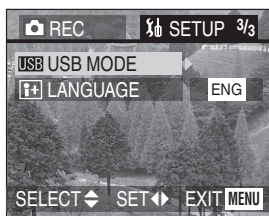
Before Connecting with USB Connection Cable

Select the USB communication system according to the OS of your PC or your printer before connecting them to the camera with the USB connection cable (supplied).

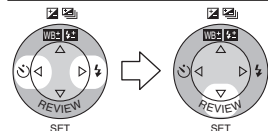
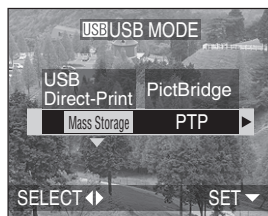
Set the items on [USB MODE] in the [SETUP] menu. (P24)

1 Select [USB MODE].

(In the recording mode)



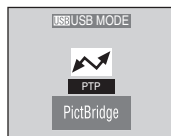
2 Select [Mass Storage] or [PTP].



USB mode	PC to be connected	Printer to be connected
Mass Storage (USB Direct-Print)	Windows® XP Home Edition, Windows XP Professional, Windows 2000 Professional, Windows Me, Windows 98/98 SE or Mac OS X (10.1 or above), Mac OS 9.x	Printers supporting USB Direct-Print.
PTP (PictBridge)	Windows XP Home Edition, Windows XP Professional or Mac OS X	Printers supporting PictBridge.

■ When using Windows 2000 Professional, Windows Me, Windows 98/98 SE or Mac OS 9.x

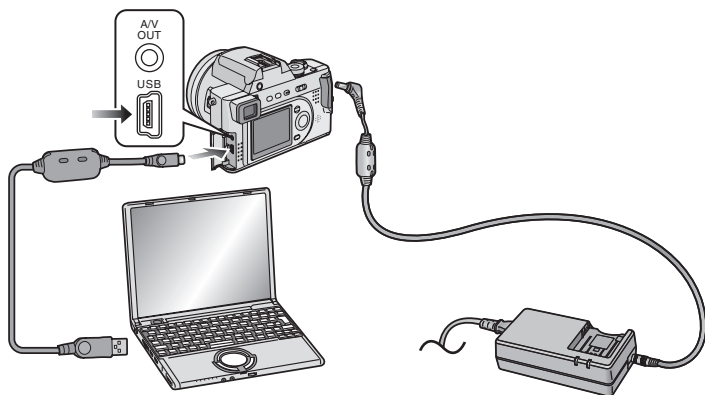
- When connecting the camera to a PC, do not set [USB MODE] to [PTP].
(When the camera is shipped, [Mass Storage] is selected.)
- When using [Mass Storage] on Windows 98/98 SE, install the USB driver before connecting. (When using Windows Me/2000/XP, Mac OS 9.x and Mac OS X, you do not have to install the USB driver.)
- When connecting to the PC which includes the above-mentioned OS with setting the [USB MODE] to [PTP], the messages shown on the right appear on the LCD monitor of the camera.



The following messages appear for each OS on the display of the PC. Select [Cancel] to close the window and disconnect the PC.

OS	Message
Windows 2000 Professional	[Welcome to the Found New Hardware Wizard]
Windows Me Windows 98/98 SE	[New Hardware Found]→ [Add New Hardware Wizard] (When you connect to the PC more than 2 times, only [Add New Hardware Wizard] appears.)
Mac OS 9.x	[Software needed for the USB device “DMC-FZ10” is not available. Would you like to look for the software on the Internet?]

Connecting to a PC (Mass Storage)



- 1 Turn the camera on and then set [USB MODE] to [Mass Storage]. (P105)**
- 2 Connect the camera to a PC via the USB connection cable (supplied).**



[Windows]

The drive appears on the [My Computer] folder.

- If it is the first time for you to connect the camera to a PC, the required driver is installed automatically so that the camera can be recognized by the Windows Plug and Play, then it appears on the [My Computer] folder.

[Macintosh]

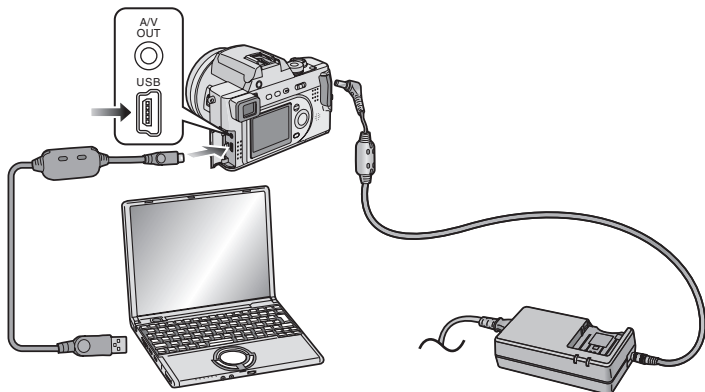
The drive is shown on the screen.

◇ Suggestions/Tips ◇

- When connecting to a PC, we recommend using the AC adaptor as the power source.
- If the remaining battery power becomes low during communication, the power indicator blinks and the alarm beeps. In this case, stop the communication. Then turn the camera off and charge the battery.
- When connecting to a PC, pictures and sounds are not output from the [A/V OUT] socket.
- Use the supplied USB connection cable only.

Connecting to a PC (PTP)

Do not follow the setting below on the OS except for Windows XP and Mac OS X.



1 Turn the camera on and then set [USB MODE] to [PTP]. (P105)

2 Connect the camera to a PC via the USB connection cable (supplied).



[Windows]

The camera icon appears on the [My Computer] folder.

- If it is the first time for you to connect the camera to a PC, the required driver is installed automatically so that the camera can be recognized by the Windows Plug and Play, then the camera icon appears on the [My Computer] folder.

[Macintosh]

You can read pictures with image capture or iPhoto.

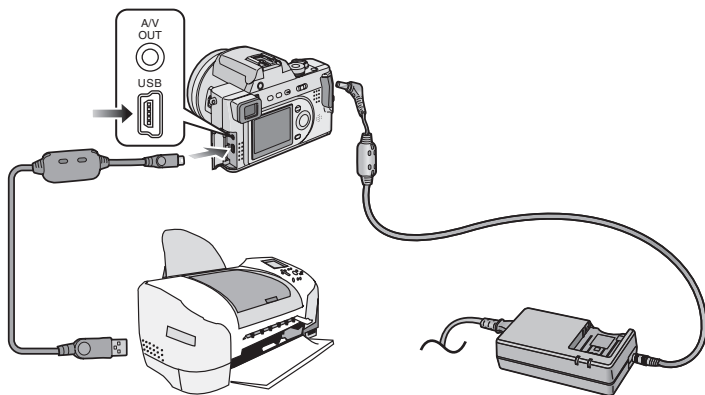
◇ Suggestions/Tips ◇

- Refer to P106 carefully when connecting to the OS except for Windows XP and Mac OS X with setting [USB MODE] to [PTP].
- When connecting to a PC, we recommend using the AC adaptor as the power source.
- If the remaining battery power becomes low during communication, the power indicator blinks and the alarm beeps. In this case, stop the communication. Then turn the camera off and charge the battery.
- When connecting to a PC, pictures and sounds are not output from the [A/V OUT] socket.
- It may take time to display the communication screen depending on the PC.

- You can only load pictures from the camera and cannot write them on the card or delete them.
- Use the supplied USB connection cable only.
- When there are 1000 or more pictures on the card, the pictures may not be imported.
- When the PC recovers from the standby mode while connecting it to a camera with USB connection cables, they may not properly communicate each other.

Connecting to a Printer

By connecting the camera directly to a printer supporting PictBridge or USB Direct-Print via the USB connection cable (supplied), you can select the pictures to be printed or start printing.



- 1 Turn the camera on and then set the [USB MODE] to [PTP] (PictBridge) or [Mass Storage] (USB Direct-Print). (P105)**
- 2 Turn on a printer.**
- 3 Connect the camera to the printer via the USB connection cable (supplied).**

◇ Suggestions/Tips ◇

- Ask the manufacturer of the printer about the corresponding models. (Read the printer operating instructions too.)
- If the remaining battery power becomes low during communication, the power indicator blinks and the alarm beeps. In this case, stop the communication. Then turn the camera off and charge the battery.
- When connecting to a printer, we recommend using the AC adaptor as the power source.
- Disconnect the USB connection cable and DC cable after printing.
- Use the supplied USB connection cable only.

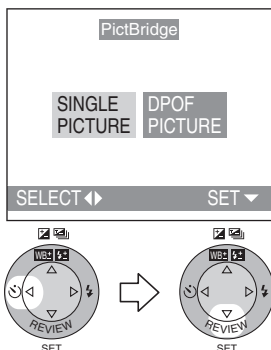
Using a Printer (PictBridge)

Preparation

- Connect the camera to a printer. (P110)
- Set the paper size and print quality. (Read the printer operating instructions.)

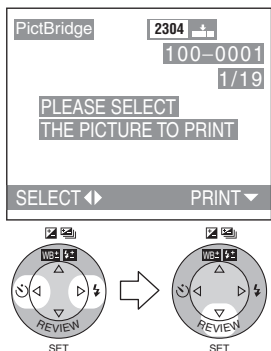
■ Single picture

1 Select [SINGLE PICTURE].

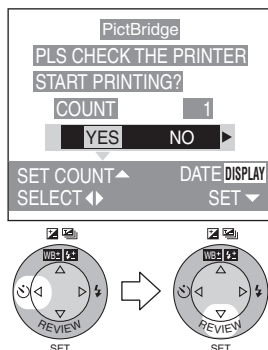


- The screen shown in step 2 appears when DPOF print is not set or the printer does not support DPOF print.

2 Select the picture to print.



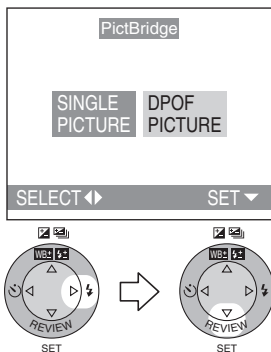
3 Select [YES] and print.



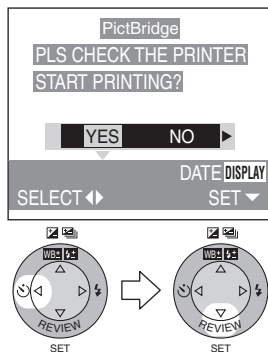
- Press the [DISPLAY] button to print the date. (Only when connecting to the printer supporting to printing the date.)
- Press ▲ and then press ◀/▶ to set the number of prints. Press ▼ to print pictures.
- Press the [MENU] button to cancel printing.

Preparation

- Connect the camera to a printer. (P110)
- Set the DPOF print with this camera in advance. (P89)
- Set the paper size and print quality. (Read the printer operating instructions.)

DPOF picture**1 Select [DPOF PICTURE].**

- Press the [MENU] button, and you can change the DPOF print setting. (P89)
- When printing under the new settings, disconnect the USB connection cable and connect it to the printer again.

2 Select [YES] and print.

- Press the [DISPLAY] button to print the date. (Only when connecting to the printer supporting to printing the date.)
- Press the [MENU] button to cancel printing.

◇ Suggestions/Tips ◇

- When the total number of prints becomes 1000 or more, the number of remaining pictures may appear as [---] on the screen.
- When connecting to a printer not supporting DPOF, DPOF printing cannot be set. (The DPOF print selecting screen does not appear.)
- Do not disconnect the USB connection cable when the cable disconnection warning icon [⚡] is indicated.
- When the [●] indication lights in yellow during printing, check if there is no malfunction on the printer.
- When the printer does not support the date printing by DPOF setting, the date may not be printed as it is on date setting in DPOF setting.
- When you do not set the date print setting, also check the date print setting on the printer.

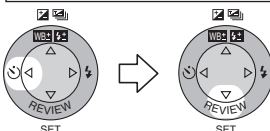
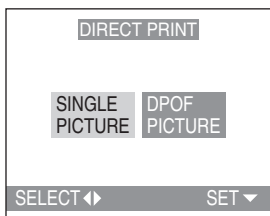
Using a Printer (USB Direct-Print)

Preparation

- Connect the camera to a printer. (P110)
- Set the paper size and print quality. (Read the printer operating instructions.)

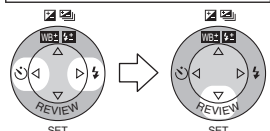
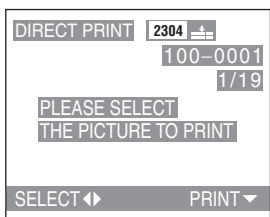
Single picture

1 Select [SINGLE PICTURE].

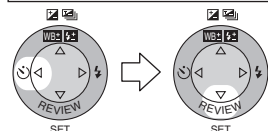
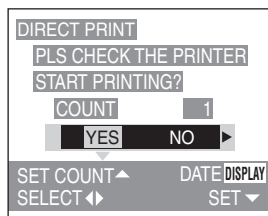


- The screen shown in step 2 appears when DPOF print is not set.

2 Select the picture to print.



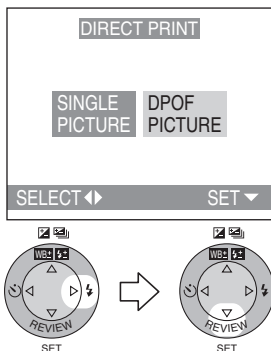
3 Select [YES] and print.



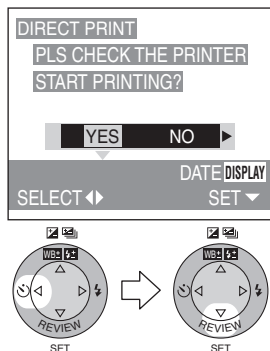
- Press the [DISPLAY] button to print the date.
- Press ▲ and then press ◀/▶ to set the number of prints. Press ▼ to print pictures.
- Press the [MENU] button to cancel printing.

Preparation

- Connect the camera to a printer. (P110)
- Set the DPOF print with this camera in advance. (P89)
- Set the paper size and print quality. (Read the printer operating instructions.)

DPOF picture**1 Select [DPOF PICTURE].**

- Press the [MENU] button, and you can change the DPOF print setting. (P89)
- When printing under the new settings, disconnect the USB connection cable and connect it to the printer again.

2 Select [YES] and print.

- Press the [DISPLAY] button to print the date.
- Press the [MENU] button to cancel printing.

◇ Suggestions/Tips ◇

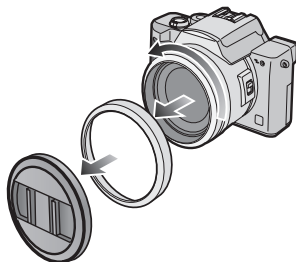
- When the total number of prints becomes 255 or more, the number of remaining pictures appears as [---] on the screen.
- When you set the date print setting by pressing the [DISPLAY] button, the date is printed regardless of the date print setting on DPOF setting. (P93)
- When the printer does not support the date printing by DPOF setting, the date may not be printed as it is on date setting in DPOF setting.
- When you do not set the date print setting, also check the date print setting on the printer.

Using the MC Protector/ND Filter

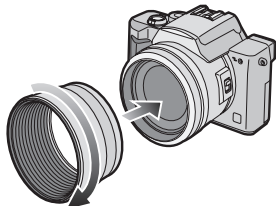
The MC protector (DMW-LMC72; optional) is a transparent filter which affects neither the colours nor the amount of light, so it can always be used to protect the camera's lens.

The ND filter (DMW-LND72; optional) reduces the amount of light to approximately 1/8th (equal to adjusting the aperture value 3 increments) without affecting the colour balance.

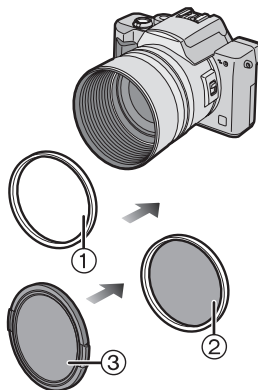
1 Remove the lens cap and the lens ring.



2 Attach the lens hood.



3 Attach the MC protector ① or the ND filter ②.



- Cap ③ (supplied with MC protector)

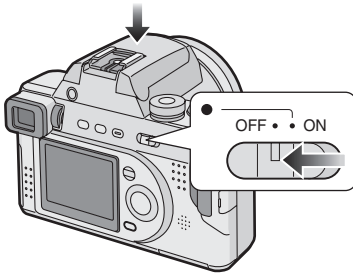
◇ Suggestions/Tips ◇

- The lens cap supplied with the camera cannot be attached to the MC protector or the ND filter.
- You cannot attach the MC protector and the ND filter at the same time.
- When taking pictures with the flash using the MC protector/ND filter, vignetting effect may occur.
- When the MC protector/ND filter fell, they may be destroyed. Be careful not to drop them when attaching.
- The cap supplied with MC protector can also be used for the ND filter.

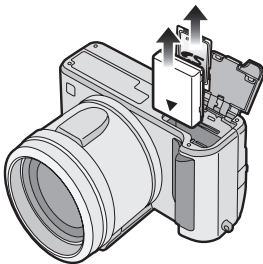
After Use

After using the camera, it is recommended that you complete the following steps:

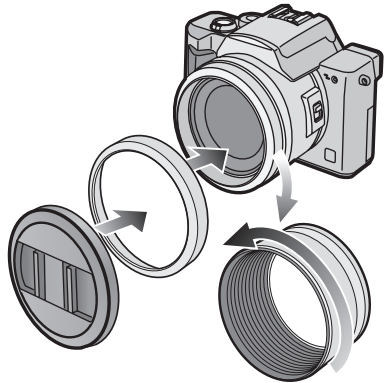
- 1 Turn the camera off and close the flash.



- 2 Remove the card and the battery. (P13, 17)



- 3 Remove the lens hood (only when using it) and attach the lens ring and the lens cap.

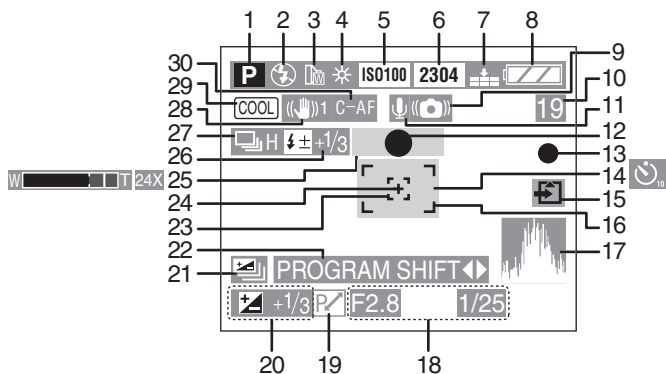


- When removing the lens hood, hold the whole of the lens hood gently and then rotate it counter-clockwise. (It may be hard to rotate the lens hood if you hold its edge.)

◆ Suggestions/Tips ◆

- If you will not be using the camera for a long time,
 - Remove the battery. (When you insert the battery again, set the clock.)
 - Do not keep the camera in a place where it will be subjected to high temperatures, high humidity or soot. Fungus may be attached to the lens or condensation may occur.
 - Keep the camera in a cool, dry and well-ventilated place and avoid storing near dust or chemicals.
 - We recommend keeping it in a closed case with the desiccant.

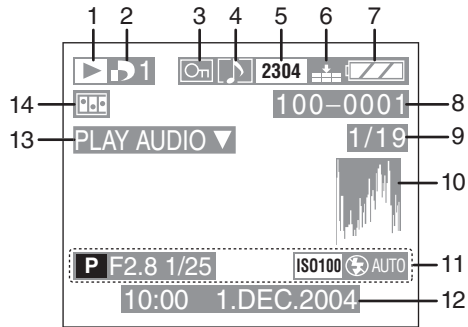
Screen Display



In recording

- | | |
|--|---|
| 1 Recording mode | 21 Auto bracket (P40) |
| 2 Flash (P36) | 22 Programme shift setting indication (P33) |
| 3 Conversion lens (P84) | 23 Spot AF area (P71) |
| 4 White balance (P65) | 24 Spot metering target (P71) |
| 5 ISO sensitivity (P72) | 25 Zoom/Digital zoom (P35, 75) |
| 6 Picture size (P69) | 26 Flash output adjustment/External flash (P38, 82) |
| 7 Quality (P70) | 27 Burst (P42) |
| 8 Battery indication (P11) | 28 Optical image stabilizer (P78) |
| 9 Jitter alert indication (P31) | 29 Colour effect (P76) |
| 10 Frame/Time remain
In Motion image mode: e.g. 11S | 30 Continuous AF (P74) |
| 11 Audio recording (P73) | |
| 12 Focus indication (P29) | |
| 13 Recording indication | |
| 14 Self-timer (P41) | |
| 15 Card access indication (P15) | |
| 16 AF area (P29) | |
| 17 Histogram (P27) | |
| 18 Aperture indication/Shutter speed indication (P29) | |
| 19 Programme shift indication (P33) | |
| 20 Exposure compensation (P39) | |

- Current date and time appear for about 5 seconds after turning the camera on or setting the clock. (P20)

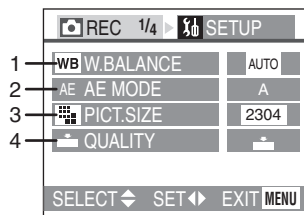


■ In playback

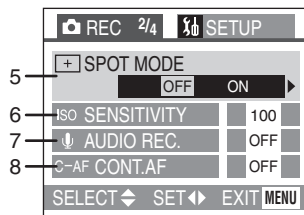
- 1 Playback mode
- 2 DPOF (P89, 96)
D1 (White):
DPOF setting for printing
D1 (Green):
DPOF setting for Slide Show
D1 (Green with number of prints):
DPOF setting for printing and Slide Show
- 3 Protected picture (P94)
- 4 Picture with audio (P86)
- 5 Picture size (P69)
: In Motion image mode
- 6 Quality (P70)
30fps: In Motion image mode
- 7 Battery indication (P11)
- 8 Folder/File number
- 9 Page number/Total pictures
- 10 Histogram (P27)
- 11 Recording information
- 12 Recorded date and time
- 13 Audio playback (P86)
PLAY MOTION
IMAGE ▼: In Motion image mode
- 14 Flip animation (P79)

The Menu Items

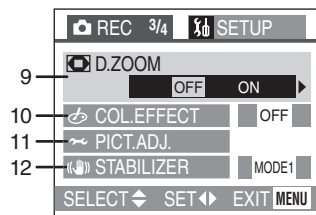
■ [REC] mode menu



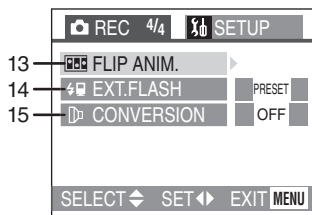
- 1 W.BALANCE (P65)
- 2 AE MODE (P50, 51, 52)
- 3 PICT.SIZE (P69)
- 4 QUALITY (P70)



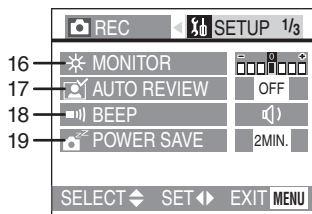
- 5 SPOT MODE (P71)
- 6 SENSITIVITY (P72)
- 7 AUDIO REC. (P73)
- 8 CONT.AF (P74)



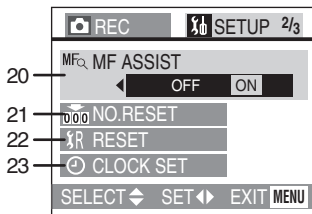
- 9 D.ZOOM (P75)
- 10 COL.EFFECT (P76)
- 11 PICT.ADJ. (P77)
- 12 STABILIZER (P78)



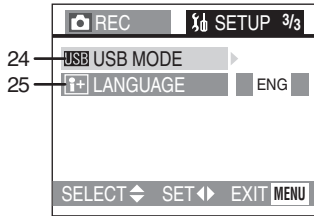
- 13 FLIP ANIM. (P79)
- 14 EXT.FLASH (P82)
- 15 CONVERSION (P84)



- 16 MONITOR/FINDER (P23)
 - The screen (LCD monitor or Viewfinder) you select appears as a menu item.
- 17 AUTO REVIEW (P23)
- 18 BEEP (P23)
- 19 POWER SAVE (P23)



- 20 MF ASSIST (P24)
- 21 NO.RESET (P24)
- 22 RESET (P24)
- 23 CLOCK SET (P20)

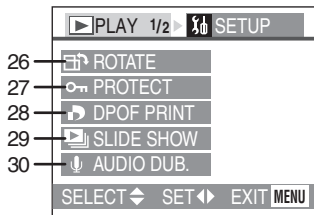


24 USB MODE (P105)

25 LANGUAGE (P24)

■ [PLAY] mode menu

- For items without numbers, refer to those with the same name in [REC] mode menu.



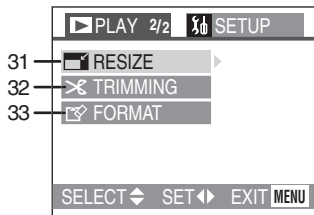
26 ROTATE (P88)

27 PROTECT (P94)

28 DPOF PRINT (P89)

29 SLIDE SHOW (P96)

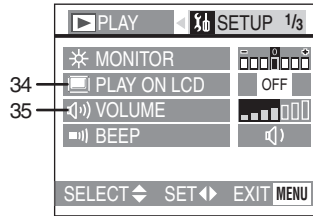
30 AUDIO DUB. (P98)



31 RESIZE (P99)

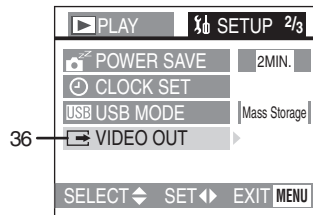
32 TRIMMING (P101)

33 FORMAT (P103)



34 PLAY ON LCD (P24)

35 VOLUME (P24)



36 VIDEO OUT (P24, 104)

Cautions for Use

In the event of abnormal operation (e.g. if the unit emits smoke or an unusual smell), immediately stop operating the unit and consult the Panasonic Customer Care Centre on 132600.

■ Optimal Use of the Camera

Keep the camera away from magnetized equipment (such as a microwave oven, TV, video game equipment, etc.).

- If you use the camera on or near a TV, pictures and sounds may be disturbed due to electromagnetic wave radiation.
- Do not use the camera near a cell phone because doing so may cause noise to adversely affect the pictures and sounds.
- Recorded data may be damaged, or pictures may be distorted by strong magnetic fields created by speakers or large motors.
- Electromagnetic wave radiation generated by a microprocessor may adversely affect the camera, causing the disturbance of pictures and sounds.
- If the camera is affected by magnetically charged equipment and does not function properly, turn the camera off and remove the battery or disconnect AC adaptor and then insert the battery or connect AC adaptor again. Thereafter, turn the camera on.

Do not use the camera near radio transmitters or high-voltage lines.

- If you record near radio transmitters or high-voltage lines, recorded pictures or sounds may be adversely affected.

Do not spray insecticides or volatile chemicals onto the camera.

- If the camera is sprayed with such chemicals, the camera body may be damaged and the surface finish may peel off.
- Do not keep rubber or plastic products in contact with the camera for a long period of time.

When you use the camera on a rainy or snowy day or on a beach or similar place, do not let grit, fine dust or seawater get into the camera.

- Grit or dust may damage the camera or card. (Care should be taken when inserting and removing the card.)
- If seawater splashes onto the camera, wet a soft cloth with tap water, wring it well, and use it to wipe the camera body carefully. Then, wipe it again thoroughly with a soft, dry cloth.

When carrying this camera, take care not to drop or hit it.

- The outer case may be destroyed by the strong shock, and it may cause malfunction of this camera.
- For storing or transporting the camera, place it in a bag or case lined with soft pads to prevent the coating on the camera body from being worn.

Do not use benzine, thinner or alcohol for cleaning the camera.

- Before cleaning the camera, remove the battery or disconnect the AC adaptor from the electrical outlet.
- The camera body may be deformed and the surface finish may peel off.
- Wipe the camera with a soft, dry cloth. To remove stubborn stains, wipe with a cloth that is soaked in a detergent diluted with water and afterward finish wiping with a dry cloth.

■ Condensation

When using the camera outdoors during very cold weather, condensation can form on the camera and lens when you return to a warm place.

When condensation has taken place: Turn the camera off and leave the camera in this condition for about 2 hours. When the camera becomes close to the ambient temperature, the condensation disappears naturally.

■ Optimal Use of the Battery

The battery is a rechargeable lithium ion battery. Its ability to generate power is based upon the chemical reaction that takes place inside it. This reaction is susceptible to the surrounding temperature and humidity, and, if the temperature is too high or too low, the operating time of the battery will be shorter.

If you drop the battery accidentally, check to see if the battery body and terminals are deformed.

Inserting a deformed battery to the camera may damage the camera.

Be sure to remove the battery after use.

If it is left inserted to the camera, a minute amount of current is consumed even when the camera is turned off. If the battery is left inserted in the camera for a long time, discharge takes place. The battery may become unusable even after it is charged.

Dispose of an unusable battery.

- The battery has a limited life.
- Do not throw the battery into fire because it may cause an explosion.

■ Cautions for Storage

Before storing the camera, remove the card and the battery.

Store all the components in a dry place with a relatively stable temperature.

(Recommended temperature:

15°C to 25°C,

Recommended humidity: 40% to 60%)

Battery

- Do not leave the camera and the battery at the place where the temperature is too high, such as inside a car during the summer.
- Extremely high or low temperatures will shorten the life of the battery.
- If the battery is kept in smoky or dusty places, the terminals may rust and cause malfunctions.
- Do not allow the battery terminals to come in contact with metal objects (such as necklaces, hairpins, etc.). This can result in a short circuit or heat generation and, if you touch the battery in this condition, you may be badly burned.
- Store the battery in a completely discharged state. To store the battery for a long period of time, we recommend charging it once every year and storing it again after you completely use up the charged capacity.

Card

- Do not leave the card in places where there is high temperature or direct sunlight, or where electromagnetic waves or static electricity are easily generated.
- Do not bend or drop the card. The card or the recorded content may be damaged.
- After use, be sure to remove the card from the camera.
- Do not touch the terminals on the back of the card with your fingers. Do not allow dirt, dust or water to enter it.

AC adaptor

- If you use the AC adaptor near a radio, radio reception may be disturbed. Keep the AC adaptor 1 m or more away from radio.
- When the AC adaptor is in use, it may generate whirring sounds. However, this is not a malfunction.
- After use, be sure to disconnect the AC cable. (If it is left connected, a minute amount of current is consumed.)
- Keep the terminal of the AC adaptor and battery clean.

Screen

LCD monitor

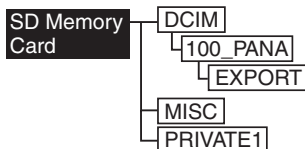
- In a place with drastic temperature changes, condensation may form on the LCD monitor. Wipe it with a soft, dry cloth.
- If the camera is extremely cold when you turn the camera on, the image on the LCD monitor is slightly darker than usual at first. However, as the internal temperature increases, it goes back to the normal brightness.

Viewfinder

- Do not direct the Viewfinder or lens to the sun. Internal components may be seriously damaged.

Folder Composition

When a Memory Card with data recorded on it is inserted into a PC, the folders shown below will appear.



- In the [100_PANA] folder it is possible to record up to 999 pictures.
- In the [MISC] folder it is possible to record the files that have been set with DPOF settings.
- The files recorded in flip animation function are stored in [PRIVATE1] folder.
- The motion images created by flip animation function are store in [100_PANA] or other folder.

Printing pictures recorded with HDTV mode

When you print pictures recorded by setting the picture size to [HDTV] (1920×1080 pixels), both ends of the pictures may be cut out.

To print pictures with ends:









When you order photo studios to print pictures:



- Ask the photo studio if the pictures can be printed with both ends.

When you print pictures with your printer:

- When using the printer with a trimming feature or a feature which cuts out both edges of the pictures, cancel the feature for printing.
- The feature depends on the printer used. Refer to the operating instructions of the printer for details.

Approximate number of recordable pictures and the size

Picture size	2304×1728		1600×1200		1280×960		640×480	
Quality								
16 MB	8	16	17	34	22	43	69	129
32 MB	17	34	36	72	47	90	145	270
64 MB	35	70	74	149	96	184	298	553
128 MB	72	142	150	301	195	372	602	1118
256 MB	144	283	300	600	390	743	1200	2229
512 MB	291	571	604	1209	785	1497	2418	4491

Picture size	1920×1080 (HDTV)	
Quality		
16 MB	17	34
32 MB	36	72
64 MB	74	149
128 MB	150	301
256 MB	300	600
512 MB	604	1209

- If you mix fine quality and standard quality, the number of recordable pictures changes.

Message Display

[NO MEMORY CARD]

Insert the card.

[THIS MEMORY CARD IS PROTECTED]

Cancel the card lock.

[NO VALID IMAGE TO PLAY]

Play back after recording or after inserting the card with a recorded picture.

[MEMORY CARD FULL]/ [NOT ENOUGH MEMORY IN THE CARD]

Insert a new card or delete the unnecessary data.

[PLEASE CLOSE THE FLASH]

Be sure to close the flash after use.

[MODE DIAL IS NOT IN THE PROPER POSITION]

This message appears when you turn the camera on with the mode dial in the wrong position.

Rotate the mode dial to the proper position.

[PLEASE SET THE CLOCK]

This message appears when you use the camera for the first time or you do not use the camera for a long time.

Set the clock.

[THIS PICTURE IS PROTECTED]

After cancelling the protect setting, you can delete or overwrite the picture.

[THIS PICTURE CAN'T BE DELETED]/[SOME PICTURES CAN'T BE DELETED]

The pictures not based on the DCF standard cannot be deleted.

[CAN'T BE SET ON THIS PICTURE]/ [CAN'T BE SET ON SOME PICTURES]

If the pictures are not based on the DCF standard, the DPOF print cannot be set.

[NO ADDITIONAL DELETE SELECTIONS CAN BE MADE]

You have exceeded the number of pictures that can be set at once with multi-delete setting.

[MEMORY CARD ERROR FORMAT THIS CARD?]

The format of the card cannot be recognized by this camera. Format the card again with this camera.

[SYSTEM ERROR]

This message appears when the camera does not operate properly. Turn the camera off and on. If the message persists, contact the dealer or your nearest servicentre.

[MEMORY CARD ERROR]

Failed access to the card.
Insert the card again.




[READ ERROR]

Data reading error.
Play it back again.

[WRITE ERROR]

Data writing error.
Turn the camera off and remove the card. Then insert the card and turn the camera on again. Be sure that the camera is turned off before removing or inserting the card to avoid damage.

Troubleshooting

- | | |
|---|---|
| <p>1: The camera is not turned on.</p> <p>1-1: Are the battery inserted or the AC adaptor correctly connected?
Check the connection.</p> <p>1-2: Is the battery sufficiently charged?
Use the battery that has been sufficiently charged.</p> <p>2: As the camera is turned on, it turns off immediately.</p> <p>2: Is the battery charge insufficient to operate the camera?
Use the battery with charged one.</p> <p>3: The brightness of the screen changes dark or bright for a moment.</p> <p>3: This phenomenon appears when pressing the shutter button halfway to set the aperture value and does not affect the recorded pictures.</p> <p>4: The picture cannot be recorded.</p> <p>4-1: Is the card inserted?</p> <p>4-2: Is the mode dial correctly set?
Check it.</p> <p>4-3: There is no memory capacity left on the card. Before recording, delete some pictures.</p> <p>5: The picture is not displayed on the LCD monitor.</p> <p>5: Does the picture appear on the Viewfinder?
Press the [EVF/LCD] button to switch to LCD monitor display.</p> | <p>6: The screen is too bright or dark.</p> <p>6: Adjust the brightness of the screen.</p> <p>7: Flash is not activated.</p> <p>7: Is the flash closed?
Press the [ OPEN] button to open the flash.</p> <p>8: Unreadable language was selected by mistake.</p> <p>8: Select [] icon on the [SETUP] menu to set the desired language.</p> <p>9: The subject is not focused properly.</p> <p>9-1: Is the subject out of the focus range?</p> <p>9-2: When you cannot focus on the subject even if you tried many times, once turn the camera off and turn it on again.</p> <p>10: The picture is not played back.</p> <p>10-1: Is the card inserted?</p> <p>10-2: Is there a picture in the card?</p> <p>10-3: Is the mode dial set to playback []?</p> |
|---|---|

11: The picture does not appear on the television.

- 11-1: Is the camera connected to the TV correctly?
Check it.
- 11-2: Set the TV to video input mode.

12: When connecting to a PC, pictures cannot be transferred.

- 12-1: Is the camera connected to the PC correctly?
Check it.
- 12-2: Is the camera recognized by the PC correctly?
- 12-3: Is the USB mode set correctly?

13: The clock setting is reset.

- 13-1: If you do not use the camera for a long time, the clock setting may be reset. When the message [PLEASE SET THE CLOCK] appears, set the clock again.
- 13-2: When you take a picture before setting the clock, [0:00 0. 0. 0] is recorded.

14: The camera will make sounds caused by internal mechanical movement when it is shaken.

- 14: The sound arises when the lens moves. This is not a malfunction.

15: Some pixels are inactive or always lit on the LCD monitor.

- 15: This is not a malfunction. These pixels do not affect the recorded pictures.

16: The pictures cannot be printed with printers supporting USB Direct-Print or PictBridge.

- 16: Is the USB mode set correctly?

Specifications

Digital Camera

Information for your safety

Power Source:	DC 8.4 V
Power Consumption:	2.6 W (When recording with LCD Monitor) 2.4 W (When recording with Viewfinder) 1.7 W (When playing back with LCD Monitor) 1.5 W (When playing back with Viewfinder)
Camera Effective pixels	4,000,000 pixels
Image sensor	1/2.5 inch CCD, total pixel number 4,230,000 pixels Primary colour filter
Lens	Optical 12× zoom, f=6.0–72.0 mm (35 mm film camera equivalent: 35–420 mm)/F2.8
Digital zoom	Single: 3×, Burst: 3×
Focus	TTL Auto/Macro/Manual/Spot AF (Spot mode)
Focus range	30 cm (Wide)/2 m (Tele) – ∞, Macro/Aperture-priority AE/Shutter-priority AE/ Manual exposure: 5 cm (Wide)/2 m (Tele) – ∞
Shutter system	Electronic shutter+ Mechanical shutter
Burst recording	4 frames/second (high speed), 2 frames/second (low speed), max. 7 frames (standard)/max. 5 frames (fine) (Performance is only with SD Memory Card. MultiMediaCard performance will be less.)
Motion image recording	320×240 pixels (30 or 10 frames/second with audio. The maximum recording time depends on the capacity of the card.)
ISO sensitivity	AUTO (without flash: from ISO50 to 200/ with flash: from ISO50 to 400)/50/100/200/400
Shutter speed	8–1/2,000th Motion image mode: 1/30th–1/2,000th
White balance	AUTO/Daylight/Cloudy/Halogen/Flash/White set
Exposure (AE)	Programme AE (P)/Aperture-priority AE (A)/ Shutter-priority AE (S)/Manual exposure (M) Exposure compensation (1/3 EV Step, –2–+2 EV)
Metering mode	Multi/Spot (Spot mode)
LCD monitor	2.0 inch low-temperature polycrystalline TFT LCD (130,000 pixels) (field of view ratio about 100%)
Viewfinder	Colour electrical Viewfinder (114,000 pixels) (field of view ratio about 100%) (with diopter adjustment –4–+4 diopter)
Flash	Built-in pop up flash Flash range: (ISO AUTO) Approx. 40 cm–4 m (Wide)/ Approx. 2 m–4 m (Tele) AUTO, AUTO/Red-eye reduction, Forced ON, Slow sync./Red-eye reduction, Forced OFF
Microphone	Monaural
Speaker	Monaural
Recording media	SD Memory Card/MultiMediaCard

Others

Picture size	2304×1728 pixels, 1600×1200 pixels, 1280×960 pixels, 640×480 pixels, 1920×1080 pixels (Still picture) 320×240 pixels (Motion image)
Quality	Fine/Standard
Recording file format	
Still Picture	JPEG (Design rule for Camera File system, based on Exif 2.2 standard), DPOF corresponding
Picture with audio	JPEG (Design rule for Camera File system, based on Exif 2.2 standard)+640×480 pixels QuickTime (picture with audio)
Motion images	QuickTime Motion JPEG (motion images with audio)
Interface	
Digital	USB 1.1
Analogue video/audio	NTSC/PAL Composite/Audio line output (monaural)
Terminal	
USB	5 pin Mini USB
Analogue video/audio	φ 2.5 mm jack
DC IN	type 3 jack
Dimensions (W×H×D)	138.5×87.2×105.7 mm (excluding the projection part)
Weight	Approx. 518 g (excluding Memory Card and battery) Approx. 550 g (with Memory Card and battery)
Operating Temperature	0°C–40°C
Operating Humidity	10%–80%

Battery Charger/AC Adaptor

(Panasonic DE-928B) Information for your safety

Input	110–240 V ~ 50/60 Hz, 0.29 A
Output	DIGITAL CAMERA 8.4 V === 1.2 A CHARGE 8.4 V === 0.65 A

Battery Pack (lithium-ion)

(Panasonic CGA-S002E) Information for your safety

Voltage/capacity	7.2 V, 680 mAh
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MEMO

MEMO



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Matsushita Electric Industrial Co., Ltd.

Web Site: <http://www.panasonic.co.jp/global/>